SB 8-75-S6

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

Army Medical Department Supply Information

Headquarters, Department of the Army, Washington, DC 20310-2300 20 June 2007

Effective until rescinded or superseded

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this publication. If you find any mistakes, or you know a way to improve it, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the US Army Medical Materiel Agency, ATTN: MCMR-MMA, Fort Detrick, MD 21702-5001. If you prefer using email, please address it to **usammacrm@amedd.army.mil**.

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Special Notice
This Supply Bulletin is Dedicated Entirely To The
US Army Medical Materiel Agency, Maintenance Depots Information

CHAPTER 1. MEDICAL MAINTENANCE SUPPORT INFORMATION

1-1. MAINTENANCE OPERATIONS DIVISION (MOD) CHIEF PERSONNEL

The MOD serves as an Army Medical Department (AMEDD) focal point for multiple aspects of medical materiel maintenance. The MOD is made up of the Office of the Chief with depot-level medical maintenance operations divisions (MMOD) at Hill AFB, UT; Tobyhanna, PA; and Tracy, CA.

Chief, Maintenance Operations (DSN 343-4365, commercial 301-619-4365)
Chief, MMOD, Hill AFB, UT (DSN 586-4947, commercial 801-586-4947)
Chief, MMOD, Tobyhanna, PA (DSN 795-7744, commercial 570-895-7744)
Chief, MMOD, Tracy, CA (DSN 462-4556, commercial 209-839-4556)

1-2. MEDICAL EQUIPMENT SUPPORT

a. The appropriate equipment and customer information is critical for the timely processing of your equipment and providing the best customer support. When shipping medical equipment for services at any one of the USAMMA Maintenance Divisions please include the following information:

Owner UIC:
Owner DODAAC:
Unit Name:
Branch of Service: (Regular Army, National Guard, Air Force, Navy)
Shipping Address:
City:
State:
Zip Code:
Point of Contact:
Commercial Telephone Number:
DSN:
FAX:
E-mail Address:

b. See Appendices A, B, and C for copies of each medical maintenance operation's External Standard Operating Procedures. These procedures provide specific guidance to assist you with receiving medical maintenance support.

c. Army Reserves, please coordinate support with your Regional Training Site - Medical.

d. The three Medical Maintenance Operations Divisions provide medical equipment maintenance and technical support for the states indicated below:

HILL AFB, UT DSN: 586-4947 Commercial: 801-586-4947

AK	ID	MT	WY
UT	CO	ND	SD
NE	KS	MN	IA
WI	MO	IL	MI
IN	KY		

Tobyhanna, PA DSN: 795-7744 Commercial: 570-895-7744

TN	AL	GA	FL
SC	NC	VA	WV
OH	VT	PA	NY
NH	ME	MA	RI
CT	NJ	DE	MD

Tracy, CA DSN: 462-4556 Commercial: 209-839-4556

WA	OR	CA	NV
AZ	NM	TX	OK
AR	LA	MS	HI

e. Contact the Maintenance Division that supports your area for questions regarding support. Information is also available at http://www.usamma.army.mil/.

1-3. MAINTENANCE DIVISIONS' ADDRESSES

a. MMOD – UT

(1) Mail address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
ATTN: MCMR-MMO-SMO
6149 Wardleigh Road
Building 1160
Hill Air Force Base, UT 84056-5848

(2) Freight address

U.S. Army Medical Materiel Agency
6149 Wardleigh Road
Building 1160, Bay 1
Hill Air Force Base, UT 84056-5848

b. MMOD – PA

(1) Mail address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
ATTN: MCMR-MMO-SMT
Tobyhanna Army Depot
11 Hap Arnold Boulevard
Tobyhanna, PA 18466-5063

(2) Freight address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
Warehouse 4, Bay 1
Tobyhanna Army Depot
Tobyhanna, PA 18466-5063

c. MMOD – CA

(1) Mail address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
ATTN: MCMR-MMO-SMTR
P. O. Box 960001
Stockton, CA 95296-0970

(2) Freight address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
Tracy Site, Building T-255
25600 S. Chrisman Road
Tracy, CA 95304-9150

1-4. INSCRIBING EQUIPMENT

Please do not permanently inscribe local and unit information onto your medical equipment. When equipment is turned in to the USAMMA, every effort is made to rebuild the equipment to a like new condition. Inscribing unit information on the equipment significantly increases the cost of refurbishing these items for re-issue. To mark your equipment, please use a label.

1-5. STORAGE AND SHIPPING CONTAINERS

a. Many of the re-usable containers used to store and ship medical equipment and test, measurement, and diagnostic equipment (TMDE) contain foam products that deteriorate due to age or other factors. Over time and with use, the foam begins to break down into tiny flakes. This condition can render the TMDE and other medical equipment useless or have an impact on the full mission capability of the equipment and/or calibration verification.

b. If you cannot replace the foam inside your re-usable containers, we highly recommend that you place the TMDE/medical equipment items in a plastic bag prior to placing it into the case. This will prevent contamination of the equipment.

c. The MMOD at Hill AFB, Utah, has made arrangements with ADR Packaging to manufacture the inserts used in different cases. They use a polyethelene foam in gray at 0.9 lb density, in green at 1.2 lb density, and in blue at 1.7 lb density.

d. The USAMMA has had very good results with the green polyethelene. The cost of the 1.2 lb density is approximately $0.50 - $0.60 per board foot (12" x 12" x 1") plus scrap that results in the forming of the pieces.

e. ADR Packaging can be contacted at 400 North Geneva Rd #C, Lindon, UT 84042. Telephone number is 801-796-3700. Fax number is 801-796-3800.

1-6. MEDICAL EQUIPMENT SERVICE LITERATURE SUPPORT

a. Biomedical technicians that do not have literature or manuals to support their authorized medical equipment can contact the medical maintenance operation that supports their region and we will provide them a disk that contains the manual. Ensure you have the correct NSN, model, and manufacturer.

b. Additionally, medical equipment operator and service literature is also available from the USAMMA, Materiel Acquisition Directorate at 301-619-4379.

1-7. DEFENSE REUTILIZATION MANAGEMENT OFFICE (DRMO)

DRMO facilities across the U.S. are reorganizing. The DLA has an excellent web site at www.drms.dla.mil/meo/home/htm. The site has a wealth of information regarding the DRMO process. It also lists the DRMO sites across the country. This site is certainly worth visiting.

1-8. TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) AUTHORIZATIONS

a. The AMEDD Combat Developer continues to work the Operational Requirements Documents (ORD) and Basis of Issue Plans (BOIP) to ensure all TOE medical organization with a medical maintenance capacity are authorized the TMDE necessary to provide unit level medical maintenance support.

b. Appendix D of the supply bulletin includes several tables that will help identify the appropriate levels of TMDE for your organization.

CHAPTER 2. MEDICAL EQUIPMENT MAINTENANCE INFORMATION

2-1. ACT 10 BLOOD ANALYZER, 6630-01-468-9142 (BECKMAN COULTER)

a. There have been some problems noted with crystallization in the lines causing erroneous readings. When the analyzer is to be stored for long periods of time or shipped to another location, it is important to follow 4.15 in the OEM literature. After completing this procedure, it is it is advisable to do the following:

(1) Enter the diluter screen by pressing the sample button while turning the unit on.

(2) Press various icons, including “wet prime”, “drain baths” and “dry prime” icons several times to cycle as much fluid out of the system as possible.

(3) Using a luer lock syringe, open any lines with visible fluid in them and withdraw the fluid.

(4) Remove the pump tubing from the pumps to maintain the shape and pliability of the tubing.

b. Replace dilutant filters every 5000 cycles or 6 months. If you have frequent or erroneous dilutant errors this is the first step to correcting them.

2-2. ANESTHESIA APPARATUS, 6515-01-457-1840

a. EXTERNAL O2 AND N29 REGULATORS VERIFICATION - Draeger does not provide verification procedures for the external O_2 and N_2O regulators used on the NARKOMED M anesthesia machine. The USAMMA has developed procedures to verify the performance of the regulators. The test procedures verify that the regulators operate according to Flotec specifications.

b. Appendix E illustrates the verification steps for the O_2 regulator, part #RN510-600. Appendix F illustrates the verification steps for the N_2O regulator, part #RNJM05-6005.

2-3. ANESTHESIA MACHINE, 6515-01-533-0968/6515-01-533-0398 (OCEANIC), MAGELLAN, MODELS 1 AND 2

a. It is imperative that the water trap supplied with the Magellan Anesthesia Machine be installed whenever the compressor is in use.

b. The compressor for this anesthesia machine does not have a dehydrator connected to it. The manufacturer of the ventilator and compressor (Smiths Medical) has found that over a period of 72 hours, a cup or more of water can be accumulated in the water trap and air lines.

c. Ensure that the water trap is always installed to prevent damage to the equipment and injury or death to the patient

6515-01-533-0968
Anesthesia Machine

d. When verifying vaporizers two things, altitude and temperature, can significantly affect your readings. Vaporizers should be verified after the unit has been stabilized for 4 hours at 20C $\pm$ 1 degree (approximately 70F). Altitude compensations are as follows.

Altitude	multiply by
2000 Ft.	.9
4000 Ft.	.85
6000 Ft.	.8

2-4. ARTHROSCOPIC SYSTEM, 6515-01-431-9631

a. During preventive maintenance checks and services (PMCS) on the Olympus-America, Inc. Arthroscope, the fiber optic bundle should be inspected carefully, ensuring that it still has 80 percent light conductivity and no breaks in the center of the bundle. PMCS includes a visual inspection of the equipment for any damaged parts or deficiencies that will prevent the unit from being used or sterilized.

b. The Arthroscope System comes with one each of the following items:

3093, Fiberoptic cable, 6515-01-139-8567
7584, Single sheet with stopcock (OBTURATOR, CONICAL), 6515-01-166-3504
7599, Trocar, Pyramid, 6515-01-166-3528
7600, Trocar, Blunt Tip Sleeve, 6515-01-173-2452
7595, Scope, 6515-01-171-6050

2-5. BATTERY SUPPORT SYSTEM, 6625-01-192-9460

Electrical safety testing of the Battery Support System for use with Physio Control's Defibrillators/Monitors Life Pak 5 has two items to note:

a. Case leakage of the Battery Support System should be less than 100uA with both an open ground and normal ground. In order to make a good ground contact, insert a probe in the rear vents of the unit and make contact with the heatsink.

b. Ground resistance for the Battery Support System cannot be verified using a safety analyzer. Verify resistance using a multimeter from the AC ground pin to the negative battery terminal in the battery (charging) compartments. The reading should be less than .66 ohms.

2-6. COMPRESSOR-DEHYDRATOR, DENTAL, 6520-01-398-4613

a. Overheating during extended operation is a common problem.

(1) Only affects units with serial numbers of 0950 and below. Originally manufactured units were wired so that the cooling coil fan would de-energize during the purging cycle.

(2) Defiance Electronics has authorized the government to correct the wiring on the pressure switch.

b. Quick Check:

(1) During the purge cycle, simply touch the center of the fan and ensure that the fan remains energized.

(2) If the fan does not remain energized the unit must be modified.

c. Modification Procedure:

(1) Remove the pressure switch cover.

(2) Disconnect the fan wire from inside the pressure switch. This is the larger black wire on the lower right side that goes to the fan.

(3) Reconnect the fan wire so that it is connected before the pressure switch. Connect to the upper right terminal.

(4) Replace pressure switch cover and perform the quick check again to ensure proper operation.

2-7. COMPUTED RADIOGRAPHY, 6525-01-504-5002

a. Cassette Error and Replacement Issues

(1) A common problem with the Orex PcCR 1417 system is that when the cassettes are being erased or scanned an error will sometimes pop up on the screen. The Error reads “WO Sensor ON State Fail.” To correct this, Source One’s guidance was to pull down on the cassette tabs and tap the closed end of the cassette on a table. This ensures that the plate on the inside of the cassette is positioned at the very bottom of the cassette. When the cassette is run again the error message may be gone.

(2) In the event that this does not correct the problem, Source One recommends that the plate be taken out of the cassette, turned 180 degrees, and installed back into the cassette. Make sure to position the plate to the bottom of the cassette by again pulling down on the tabs and tapping the cassette on a table. If this does not correct the problem, it is time to order another cassette. At the time of the above referenced discussion, the price for a 14 x 17 cassette w/plate was $1,290 each. Doing these extra steps to increase the life of your cassette w/plate may help save precious resources.

b. Computed Radiography System Software Issues

(1) The Army started purchasing the Orex PcCR 1417 system approximately 3 years ago. Since then there has been about 266 scanners purchased. Of these 266 scanners we have 4 different hardware versions (96 of the first version, 71 of the second version, 12 of the third version, 87 of the forth version) and about 21 different software versions. The scanner interface software has changed 16 times and the application software has changed 5 times. Orex has released a new improved version of the parts manual. Still, it has a very limited quantity of part numbers.

(2) Tobyhanna is dedicated to provide Orex support. To help simplify the software issue all the different versions of the software have been tested and the number of Orex Scanner Interface Software versions have been reduced to three, and one version of the application software.

(3) About 80% of the problems with these systems in the field are software related, mostly as a result of using the computers for web access. Please do not use the computer for internet purposes.

(4) To help reduce some of the frustration in the field, we have made a DVD System Disk for this system. With this disk you may reload the complete software on the hard drive on any version of the scanner. Along with the software are the latest manual updates, and the instructions and software needed to configure the system for DICOM In, Modality Worklist, Remote Patient Entry, and Diagnostic Viewer. We have also made a list of all the scanners by serial

number and listed the software they should be using. We are constantly updating this disk to ensure the latest Operator's, Service, and Parts manuals are available.

(5) Questions or comments should be directed to 570-895-7734 or DSN 795-7734.

2-8. CONCENTRATOR, OXYGEN, 6515-01-434-4629

a. When testing the AIRSEP oxygen concentrator for purity, it is recommended that you use a Fluke Biomedical Gas Flow Analyzer, model VT Plus or equivalent O2 measuring device with a waveform producing capability. The VT Plus produces a waveform which enables you to identify occasional O2 output purity fluctuations. This waveform should remain fairly level and fluctuation of the oxygen levels should be minimal.

b. When using alternative test equipment to verify the concentrator, it may appear as though the concentrator is passing the purity tests, however, visibility of intermittent fluctuations where the purity drops below acceptable oxygen levels may be unseen. Low purity is primarily a result of bad sieve beds. Additionally, a bad mixing tank can also cause fluctuations in the oxygen purity. Anytime you replace the sieve bed assembly, Part Number BE001-1R, you should also replace the mixing tank assembly part # TA-089-2.

c. There are two versions of this O2 concentrator on the market. The newer version includes a design change that is not in the OEM service manual. In the older version, the pressure outlet is located on the right side as you face the front of the unit. In the newer version, the pressure outlet is in the rear of the unit, however access it from the right side. Remove the right side cover and locate the tube with the pressure outlet attached. Connect your pressure gauge to this tube. All other aspects of the testing are the same.

2-9. DEFIBRILLATOR, MONITOR RECORDER, 6516-01-515-4197

a. Non-Invasive Blood Pressure (NIBP) Leak Testing Procedure

(1) Zoll Medical Corporation is in the process of publishing revised NIBP leak testing limits (PM Procedure #20.0) to reflect the variances between the two different testing methodologies associated with different types of NIBP Analyzers.

(2) Zoll's service manual calls for a BIO-TEK BP Pump NIBP Monitor Analyzer or equivalent in its testing procedures. The requirement to identify two different limits is based on the use of a test cuff when using the DNI CUFFLINK Analyzer.

(3) Zoll has identified the following leak test limits for the two types of Analyzers:

(a) BIO-TEK BP PUMP NIBP MONITOR ANALYZER - No change.

- A volume leak reading less than or equal to 4 mmHg, the unit passes the test.
- A volume leak reading greater than 4 mmHg; the unit fails the leak test.

(b) DNI CUFFLINK ANALYZER

- A volume leak reading less than or equal to 10 mmHg, the unit passes the test.
- A volume leak reading greater than 10 mmHg; the unit fails the test.

(4) This information provided by the Senior Technical Support Representative, Zoll Medical Corporation. Phone: 1-800-242-9150 ext. 9195, e-mail jtoma@zoll.com.

b. CCT Defibrillators Software Update

(a) On Aug. of 2004 Zoll updated the M series CCT defibrillators software from Rev. 56.00 to Rev. 57.00. This update only affects the summary report, nothing else. rThe manufacture has advised that if a defibrillator needs the software update but has recently had a full PM inspection or is within its calibration date, another full PM is not necessary following the software update.

(b) All that needs to be checked is the summary report test, which is step 14.0 (14.0 – 14.4), in the manufacturer's service manual test procedures. Nothing has changed on the Summary Report Test procedure; perform this test just as stated in the service manual. The manufacturer does not foresee another update in the immediate future.

2-10. DENTAL OPERATING UNIT, FIELD, 6520-01-493-3759 (AKA "DEFTOS")

a. When unpacking the Bell Dental Products Field Dental Operating Units sent to our medical maintenance operations depots for maintenance and repair, we are finding the hoses in pouch number 2 to be pinched due to improper packing. This is caused when the unit is packed backwards (front of unit facing back of case) and when the contents of pouch number 2 are not properly packed.

b. The unit should always be packed in the case with the front of the unit facing the front of the storage case, as stated in the operating and service manual. This will protect the circuit breakers as well as the connectors, which are on the back of the unit. This will also give a flat surface to help protect the contents of pouch number 2 from being pinched. When packing the pouches, the hoses and cords should be coiled so that the diameter of each coil is as wide as possible to ensure that the pouches are not too thick when placing them into the storage case. When the pouches are too thick, the hoses tend to get pinched from the force placed on them. The laminated instruction cards should also be placed between pouch number 2 and the instrument tray assembly to ensure that the tray support doesn't pinch the hoses.

2-11. ELECTROSURGICAL APPARATUS, 6515-01-309-6647

a. There are two versions of the Valleylab, Force 2 electrosurgical unit. The PRSF board in the Force 2 generator changed in 1995. You can determine the year of manufacturer of your equipment by the serial number. Example F6E9999T

F6E9999T Breakdown				
F	6	E	9999	T
Force 2	last number of the year of manufacturer	month of manufacture	body of 4 numbers indicates it was manufactured 1985 thru 1995 and was the 9999th unit made. A body of 5 numbers indicates it was manufactured from 1995 thru present.	also stands for Force 2
In this example the Force 2 was manufactured in May of 1986 and it was the 9999th unit manufactured.				

b. Units manufactured before 1995 have a verification procedure as well as a calibration procedure in the OEM service manual. Units manufactured after 1995 have only a calibration procedure.

c. It has been determined that the default auto sequence in the Fluke Biomedical 454A Electrosurgical Analyzer does not meet Valleylab's standard for testing the Force 2 generators. An auto sequence can be manually created in the 454A that will meet the Valleylab test standard of a

200 ohm load when doing RF output tests. The following tests must be entered into the auto sequence.

(1) Generator Output tests with a 300 ohm load at the following settings.

Coag	30 Watts
	120 Watts
Pure Cut	300 Watts
Blend 1	250 Watts
Blend 2	200 Watts
Blend 3	150 Watts
Microbipolar	70 Watts

(2) RF Leakage tests with a 200 ohm load, both active and dispersive leads at the following settings. Use the following identified wattage setting.

Pure Cut	35	55	75	95	115	135	155	175	195	300
Coag	55	75	105	115	120					
Microbipolar	70									

d. Do not use a disposable pencil to test the RF Leakage, this will give you false readings. Use the active accessory and activate it using the footswitch.

2-12. GENERATOR, OXYGEN, MEDICAL, POGS, 6530-01-533-4481

a. The POGS33C is the oxygen concentrator from ONSITE GAS SYSTEMS. It is capable of delivering 33 LPM while maintaining 93% - 96% oxygen. During setup it is imperative that the O_2 analyzer be calibrated correctly. While the calibration does not effect the actual production of O_2, the analyzer readings are used to alert operators in the event of low O_2 production.

(1) The generator needs to run for 45 minutes prior to calibration.

(2) During this period, install three flow meters and set them to a combined flow of 30 LPM. This allows the existing gases in the O_2 tank to be purged by the O_2 from the sieve beds.

(3) After the 45 min start-up period, factory representatives advise to calibrate at the High range first, then the Low (20.9%) and then the High again.

b. The VT PLUS gas flow analyzer may be used to calibrate the High range of the O_2 analyzer. Build a manifold to connect three flow meters to the VT PLUS using tubing, swivel connectors and zip ties.

c. The POGS33C uses a model MedAir 2000 CO (carbon monoxide) and Dew Point monitor from ENMET Corporation which is mounted internally. If there is an alarm coming from within the generator, although one should not rule out the possibility that high levels of CO are present, it is possible that the MedAir 2000 is out of calibration.

(1) The following is a list of items ENMET Corporation recommends to verify the calibration of the MedAir 2000:

Gas Regulator	037-00-500	$145
CO Cylinder	03219-020	$50
O_2 Cylinder (20.9%)	03296-209	$50
Case (Optional)	730-83-000	$20

(2) Additional information is available in the MEDAIR 2000 manual which should accompany the POGS 33C literature.

2-13. LIGHT, FIELD SURGICAL, 6530-01-343-2033

Battery disconnection procedures.

a. While the Gettinge Castle model 2410MB field surgical light is in storage, the two 12VDC batteries need to be disconnected. The previous method for disconnecting the batteries includes removing the base cover (6 screws) and removing the battery hold down bracket (3 nuts). The batteries are then maneuvered out of position to allow access to the terminal screws. Once disconnected and tucked back into position, you must then reinstall the battery hold down bracket and base cover. While this is not a difficult exercise, it is rather cumbersome and time consuming.

b. It has been determined that there is a more practical solution which takes less time. After removing the base cover, simply disconnect the J1 connector from the RELAY PCB. This effectively removes both batteries from the circuit. There is no wrestling with bracket or batteries. A “BATTERIES DISCONNECTED” sticker can be used to secure the J1 connector in a position that will prevent damage and ensure that the next technician reconnects during set up procedures.

2-14. MONITOR, VITAL SIGNS, PRINTER DOOR ASSEMBLY (6515-01-423-5796, 6515-01-423-5872, 6515-10-432-2707 AND 6515-01-432-2711)

A printer door assembly problem has been identified in the models 100 series, 200 series, and Encore Propaq Vital Signs Monitors, NSNs 6515-10-432-2707, 6515-01-432-2711, 6515-01-423-5872, and 6515-01-423-5796, that allows the printer door linkage that activates the printer when the printer is closed to become disconnected under normal use. The symptoms include the printer not functioning or printer door not staying closed.

a. A washer and a retaining grommet are available that affixes to the tab of the door pin prohibiting the linkage from coming disconnected.

b. For additional information regarding this issue contact your regional Medical Maintenance Operations Division.

2-15. MONITOR, VITAL SIGNS, 6515-01-432-2707 AND 6515-01-432-2711

a. THE INSERV FEATURE. When performing maintenance services, the INSERV feature of the Welch Allyn Propaq 206EL will not function if the accessories are connected. IAW the service manual (section 2), ensure all accessories are disconnected from the unit before using the INSERV feature.

b. PRINT HEAD ASSEMBLY DAMAGE. Upon completion of maintenance services, and anytime before placing the monitor in storage, ensure that the recording paper is not fed through the print head or remove the paper from the recorder altogether. Leaving the paper fed through the print head during periods of storage causes damage to the print head assembly. Additionally, it is a good idea to place the monitor inside a plastic bag to protect it from the elements during both short and long term storage. This also helps prevent the loss of any articles that may come loose inside the case.

c. RESPIRATION FUNCTION ACTIVATION.

(1) During 2001 and 2002 several Vital Signs Monitors delivered to the USAMMA did not have the respiration function activated. Welch Allyn had provided training and loaned the equipment necessary to activate the respiration function to the medical equipment repairers at Hill AFB, UT. The equipment has been returned to the manufacturer and the USAMMA will no longer be able to activate the respiration function.

(2) The label on the left side of the equipment should provide a quick indication of whether or not your monitor has the respiration function is activated. The label displays either

ECG/EKG RESP, or ECG/EKG. If it does not have RESP, it is not installed. Additionally, when you turn the unit on if you can select RESP (2nd selection from the left), it is installed.

(3) If you are assigned to an Army TOE medical unit and have a Vital Signs Monitor that does not have the respiration function activated, contact Welch Allyn Protocol and provide them with equipment's serial number. If the serial number of your monitor is on their list of monitors procured on the contract, Welch Allyn will activate the function at no cost. Contact Welch Allyn Protocol Inc's Customer Service at 8500 S.W. Creekside Place, Beaverton, OR 97008; or call them at 800-289-2500 (select option "1" twice).

2-16. MONITOR, C02 SENSOR, VITAL SIGNS, 6515-01-432-2711

Mainstream CO2 sensor, service and replacement.

a. The appearance of a “degraded waveform error message” indicates that the Mainstream CO2 Sensor is bad.

b. Welch Allyn has recommended that the sensor be exercised at least every six weeks. This means that if the unit is in storage or not being used, the unit will have to be turned on and the sensor allowed to warm up. Once it is warmed up, an airway adapter will need to be attached and breathed into until the unit generates a waveform. This procedure prevents the sensors' motor from drying up.

c. Replacement sensors are expensive. Costs identified in this publication may differ from your actual cost dependent on source, quantity, and/or inflation.

(1) A brand new sensor, (PN 008-0502-00) costs about $2200.

(2) A brand new sensor with the exchange/trade-in of a bad sensor is about $1050 (includes a one year warranty).

(3) A refurbished sensor with the exchange/trade-in of a bad sensor about $850 (includes a 90 day warranty).

(4) The part number will be generated when the user specifies what type of exchange they want. The only thing required at the time of purchase is the serial number of the bad sensor and specification of which type of exchange.

2-17. OPTICAL MICROSCOPE, 6650-00-973-6945

The Bausch and Lomb Optical Microscope, Model STEREOZOOM 4, although out of production is still being issued to field medical units. Parts can be obtained through Microscope Services, Reichert Inc., New York. Their phone number is 716-686-3166 and their website is www.reichert.com.

2-18. PORTABLE OXYGEN GENERATION SYSTEMS, 6515-01-505-0203/ 6515-01-533-4481 (ON SITE GAS SYSTEMS MANUFACTURER), MODEL POGS 33 AND POGS 33C

Information has come to our attention that On Site Gas Systems has not provided all of the part numbers for accessories in their service literature. Here are some additional parts and part numbers used with the POGS:

NOMENCLATURE	PART NUMBER
20 FOOT OXYGEN HOSE W/ FEMALE TO FEMALE FITTINGS	P33-040-007
15 FOOT OXYGEN HOSE W/ FEMALE TO FEMALE FITTINGS	P33-040-005
8 FOOT OXYGEN HOSE W/ FEMALE TO FEMALE FITTINGS	P33-040-003

2-19. PUMP, INFUSION, 6515-01-452-0625 AND 6515-01-486-4310

a. BATTERY OPERATION TESTING. When performing the battery operation test portion of the system function test for the Medsystem III 2863 and 2865 as defined on page 3-10 of the OEM service manual, Alaris Medical Systems has identified a technique that can save time and money.

(1) A one inch square piece of red (other colors not detected) silicone rubber can be used instead of a mini-set cassette filled with water. In addition to decreased costs, this also reduces the chance of the unit alarming during this test as well.

(2) Use a modified fluid side occlusion cassettes (reference appendix B of the OEM service manual, page A-8) and place a one inch square piece of red silicone in the air in line detector. Then perform tests according IAW page 3-10 of the OEM service manual.

(3) Modification of the fluid side occlusion cassette should be done as follows. Remove the rubber boot from the plunger stem and cut away all of the tubing from the cassette. Additionally the small square rubber film on top of the cassette must be removed while the large round rubber film needs to be left in place.

(4) A 12" X 12" sheet of red rubber silicone (PN 8632K34) is available from McMaster Carr for $22.02. This can be used to make multiple one inch squares of rubber. This saves a lot of money by not having to purchase more mini-sets (PN 28125) that cost $150.00 for a box of 50 EA. McMaster Carr can be contacted at (404) 346-7000 and (404) 629-6500.

b. LITHIUM BATTERY FAILURE INDICATION. When the Infusion Pump is first turned on after removal from extended periods of storage it is not uncommon for the pump to indicate a lithium battery failure. With the exception of clearly visible physical damage the ensuing procedure should be followed prior replacing the lithium battery.

(1) Charge the unit for 24 hours.

(2) After the unit has charged for 24 hours, place the unit into maintenance mode and connect it to a computer with FMS software supplied by the Alaris.

(3) Re-enter the pump's specific information using the software.

(4) Remove the pump from the computer.

(5) Turn the unit off and unplug the unit from A/C.

(6) Start the unit normally. Confirm the unit's serial number is displayed on the screen with no errors. If the serial number is displayed and no errors appear, the unit still requires a software calibration.

(7) Place the unit back into maintenance mode and hook it up to the computer and follow your normal procedures for calibration and clearing the error logs.

(8) If there are errors, replace the lithium battery.

c. ALARIS MEDICAL SYSTEMS TECHNICAL INFORMATION AND SOFTWARE UPDATES. Alaris Medical Systems has published guidance in an attempt to make technical information and software updates for their model: 2850, 2863, and 2865 series infusion pump more accessible and user friendly.

(1) Their web address for technical support, information regarding service bulletins, software patches and upgrades is http://alaris.pint.com/na/technical/bio.shtml**.**

(2) To order a Technical Service Bulletin, please call ALARIS Medical Systems Customer Services at (800) 482-4822.

(3) To register for online Technical Service Bulletin Access, please call ALARIS Medical Systems Technical Support at (800) 854-7128, extension 6003.

Note: This is a list of Active Service Bulletins not already incorporated in the latest revision the Technical Service Manual part number 2863012 released Apr. 94. This is not a history of all Service Bulletins.

(4) Alaris plans to release new software during 2006 for the calibration/ Verification of the MedSystem III infusion pump. Their plan is it to make it faster and more user friendly.

d. DRIVE MOTOR FAILURE. The Hill Medical Maintenance Operations Division has noticed an increase in the Drive Module Kit (P/N 2860745) needing to be replaced. The cost for this part is $551.25 through Cardinal Health formerly known as Alaris. We have found that in some circumstances the problem can be fixed with a Motor Kit (P/N 2860760) at a cost of $291.90. This is a cost savings of $259.35 each.

2-20. PUMP, INFUSION, 6515-01-486-4310

Alaris I.V. Pump model 2865B LCD display problems.

(1) There have been some noted problems including discoloration of the pixels, inconsistent dark and light color and uneven (blotchy) polarization, and shadows of the previous screen affecting the performance and bringing into question the reliability of the Alaris I.V. Pump LCD display. The USAMMA has concluded that the problems are common to the newer Solomon LCD.

(2) Cardinal Health Alaris recognizes this problem and has agreed to perform the necessary circuit repair for any units demonstrating this problem.

(3) The following test sequence should be considered for medical equipment repairers to test Alaris Infusion Pumps. This guideline **does not** replace any manufacturer procedures for testing or servicing their product. See Appendix G of this publication.

2-21. PUMP, INTRAVENOUS INFUSION, 6515-01-498-2252

The Infusion Dynamics Intravenous Infusion Pump has an accessory called the Crystalloid and Colloid Pump Cartridge and IV Set (part number 0040-0050). Please be aware that the date on the back of the package is the date the cartridge was manufactured. There is no expiration date printed on the package. The manufacturer explained that a 3-year shelf life was specified to the Army when the infusion pump was acquired. Although it has not been tested in extreme heat, the manufacturer states that the 3-year shelf life would be shortened to 1-year shelf life if the IV Set was exposed to such conditions.

2-22. REFRIGERATOR, BLOOD, 4110-01-506-0895

The USAMMA has published procedures for performing a technical inspection/service for the ACUTEMP model: HMC-MIL-1 Blood Refrigerator Unit. See Appendix H of this publication for additional information.

2-23. STERILIZER, STEAM, 6530-01-431-6564 AND 6530-01-442-8720

SOFTWARE UPGRADE

(1) A software update allowing the repairer to calibrate the unit from the parameters menu is available for Harvey MC10 Steam Sterilizers that were built prior to the year 2000. Although the update is not required, it significantly reduces the amount of calibration time by precluding the requirement for the repairer to open the case and go to the motherboard.

(2) Some units may have already been updated. Verification that your unit has the updated software can be done as follows:

(a) Press and hold CONTROLS OFF, then press and hold PROGRAM SET.

(b) Release CONTROLS OFF, wait one second and release the PROGRAM SET button. The unit should display the LOG in the upper left corner of the display.

(c) Step through the selections by pressing PROGRAM SET. Use the UP ARROW or DOWN ARROW to change the selection.

(d) As you are scrolling through, the last parameter should be CALIBRATE if you have the updated software. If there is no CALIBRATE parameter you have an old software version.

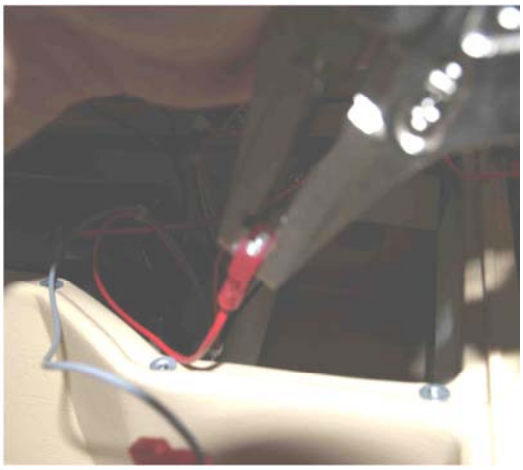
(3) The software update consists of an EEPROM (PN SC1203X1) available from Barnstead International/Harvey; phone: 1-800-553-0039. The cost is $35.

2-24. SUCTION APPARATUS, 6515-01-435-5350, 325M

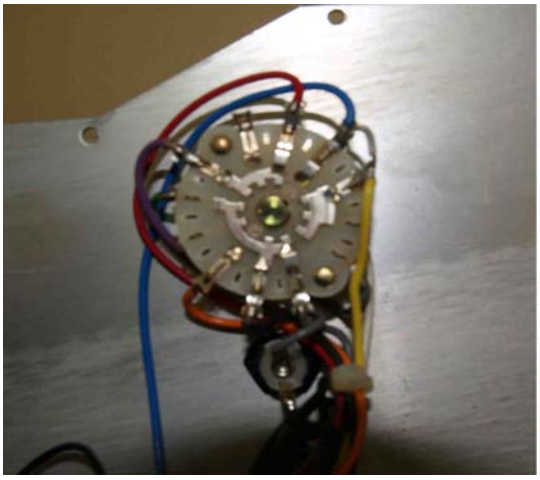
a. A common problem encountered with the 325M Suction Device is the battery terminals becoming loose and disconnecting from one or both of the internal battery packs. The battery is relatively difficult to get to and a disconnection will make the unit non-operational. It is imperative that the wires remain connected inside the unit to ensure reliable operation and to permit recharging. The terminals should each be squeezed separately during every scheduled maintenance, and then reattached to the battery at their proper polarity position(s).

b. Another concern to be aware of when servicing this suction apparatus are the small Phillips screws which strip easily when turning them back in to reattach the unit plate. Utilizing a flat-bladed device to manipulate and position the flexible plastic molding will align the thread-hole concentric to the screw and allow successful reassembly. This precautionary procedure will prevent an otherwise good unit from being removed from mission capable status because of a damaged case. (See photos below)

c. Another frequent occurrence with the 325M happens when the operator turns the dial switch and the pump motor does not initiate. Sometimes the motor will engage between dial increment settings only. Most often the cause is the contact surface adjoining the yellow wire. It either has twisted and needs careful realignment and crimping, or the electrical path has been broken and the switch needs repair or replacement. See photos below.



d. Packaging the manual(s) or hose-tubing container inside the lid of the suction unit causes downward pressure to be applied against the moveable arm mechanism to which the gauge is attached. This forces the right corner of the gauge housing to jam against the unit plate. The internal mechanism of the pressure gauge moves independently of the housing, rendering the gauge damaged which requires replacement. See photos below.



2-25. SUPPORT FOR THE NEW ISO-RAD SYSTEM (PHILIPS MEDICAL SYSTEM)

a. In order to support the new ISO-RAD System, you will need to first apply for IST permissions from Philips Medical Systems. To obtain the correct permissions send an e-mail to Coop.helpdesk@philips.com. Inform the helpdesk as to what type of Philips Systems you work with so that they will be able to assign the correct permissions. Once the helpdesk has created an account, you will then need to load the following programs on the laptop that you plan on using to perform maintenance on new BuckyTH X-Ray System. That soft ware is: IST (Philips Encryption), APR MANAGER (BuckyTH APR Editing Software), AGENT (Optimus Generator interface), X-SCOPE (Table, Tubestand, Receptor interface), In-Center offline (viewing Philips documentation.

b. With this new version of IST, you will no longer need the PMS Sec Reader and the Dongle Key!

c. This will also give you access to Philips Incenter web site https://incenter.medica.philips.com where you can find Operators and Service Manuals, and Field Change Orders for any Philips systems that is in the field (BuckyTH (X-Ray System) BV300 (C-arm), Compano Classic (CR System), Compano Eleva (CR System), MX8000 Dual (CT) and PQS2000 (CT)).

2-26. SURGICAL LIGHT BASE, 6530-01-518-9854

Since the Fedmedical literature does not contain any electrical schematics for the Surgical Light Base, Appendix I of the supply bulletin includes a wiring diagram that will supplement the Theory of Operation in the literature for troubleshooting purposes.

2-27. TABLE, OPERATING, FIELD, 6530-01-321-5592

a. Electrical Safety testing of the surgical light (NSN 6240-01-455-7873) has disclosed that an unacceptable leakage current level exists in some of the lights that are part of the field

operating table. RTS-Medical personnel at Fort McCoy, WI, provided additional information that relates to the JT-101 and YH75A power supply PCBs.

b. If your FST OR table surgical lights have an electrical leakage problem (>300 UA) follow these instructions.

(1) Step 1: Remove the plastic terminal cover at the bottom of the lamp column and make a small mark with a permanent marker on the red lead to the power supply PCB that is connected to the black lead of the incoming power cord. Continue with the disassembly of the lamp by removing the base joint assembly and middle knuckle of the lamp. Remove the two screws securing the PCB heat sink about halfway up the lamp column. Undo the wire nuts at both ends and slide the PCB out the bottom of the column.

(2) Step 2: Identify the board you are modifying and locate the hot lead.

(a) If you have an YH75A board, its number will be found on the right edge of the component side of the board. The YH75A hot lead is located on the opposite side from the part number and heat sink ground lug viewed from the component side. Trace the lead from this wire and it goes to the line fuse.

(b) A JT-101 board will be labeled on the “run” side, in the upper middle. The JT-101 board is laid out with the hot lead on the same side as the heat sink ground lug, going to a fusible link, (the very thin wire overlaying the resistor symbol silk screened on the component side). Don’t be concerned if the black mark you made in step one seems to be reversed. Many of these boards were connected backwards during assembly. The fuse should always be connected to the incoming, (hot) side. If your connection is reversed, correct it now by gently scraping off the small black mark and applying a larger one to the hot lead. You may also mark the other red wire (neutral) with a white marker. This precludes any need to de-solder and replace the existing red wires.

(3) Step 3: “Float” or electrically disconnect the ground pad of the PCB. Unscrew the lug from the heat sink. Use a small diagonal cutter and snip off the lug flush with the surface of the PCB. Snip off the green ground wire where it enters the PCB. (No soldering iron needed for this step.)

(4) Step 4: Connect the isolated ground lug to the neutral lead. This step diverts risk current to neutral. Some risk current is induced due to the proximity of the runs on this board. The balance probably comes through the two filter capacitors which terminate on the ground pad. These caps are present on both power supply modules. They are thin film ceramic caps with high dielectric ratings (350 V to 3.3 kV on the samples encountered).

(5) Step 5: Acquire a 28 AWG stranded signal wire, strip it and pull out a single strand. This should measure about .010 inch in diameter. For comparison, the fusible link wire found on the JT-101 board measures about .007-inch. Solder this wire between the ground pad and the neutral pad. Use of 60/40 solder with rosin flux will facilitate this operation and probably eliminate the need for additional solder. This thin wire will carry risk current and protect the board if an equipment malfunction occurs.

(6) Step 6: Place a ring terminal on the line cord ground lead and connect it to the chassis with a 6-32 screw and nut. Drill a hole between and slightly below the screw holes for the line cord terminal cover. Face the screw head out and the cover should fit over it during reassembly of the lamp.

(7) Step 7: Reassemble and safety test the lamp using normal and reverse polarity. You may also open and close the ground switch as part of the test. This should bring the electrical leakage within (<300 uA) acceptable limits.

2-28. TABLE, OPERATING HOSPITAL (FIELD), 6530-01-353-9883

The field operating table, model 2080, manufactured by Steris Corporation, LIN T00029, is supplied with a number of accessory components. The list of accessories supplied with the table is taken from the Medical Procurement Item Description (MPID). Appendix J shows a picture for each part. For ease of inventory and operational readiness, you should make a copy of this list and include it with the manufacturer's literature.

2-29. USE OF HEPA FILTER WITH IMPACT 754M VENTILATOR

a. The manufacturer's literature states that hardware calibration should only be performed after repair or replacement of the analog PCB, CPU PCB, power PCB, or flow manifold and after failed attempts at computer calibration. Hardware calibration should be performed at 50 psi. Only 02 and air pressure tests are performed at 60 psi. Ensure calibration on all cylinder gauges (VT Plus). This procedure sets the baseline low and high voltages for the following seven circuits:

Signal	Low Setting	Adj. Pot	High Setting	Adj. Pot	RT-200 Function	Model 100 Gas Type
O2 Flow	0 LPM: 0.5V	VR1	60 LPM: 4.5V +/- 20mV	VR2	35	Oxygen
Air Flow	0 LPM: 0.5V	VR3	60 LPM: 4.5V +/- 20mV	VR4	36	Air
Mixed Flow	0 LPM: 0.5V	VR5	60 LPM: 4.3V +/- 20mV	VR6	35	Oxygen
O2 Pressure	0 PSI: 0.5V	VR7	60 PSI: 4.5V +/- 10mV	VR8	N/A (Use Cylinder Gauge)	N/A (Use Cylinder Gauge)
Air Pressure	0 PSI: 0.5V	VR9	60 PSI: 4.5V +/- 10mV	VR10	N/A (Use Cylinder Gauge)	N/A (Use Cylinder Gauge)
Barometer	Ambient: 4.5V	VR14	-10 PSI: 0.5V +/- 20mV	VR13	21	N/A
AW Pressure	0 cmH2O: 0.5V	VR11	100 cmH2O: 4.5 +/- 20mV	VR12	12	N/A

b. After hardware calibration is completed, you must perform a complete computer calibration. This software calibration sets reference voltages within the 754M Ventilator's memory. This software uses the RT-200 (VT-Plus in RT-200 mode) to regulate the flow and pressure of the gas coming through the ventilator. When the flow/pressure reaches a certain level, the computer stops the flow/pressure and retains that voltage into memory in the ventilator and proceeds to the next level. These voltages fall within the baseline values set during the hardware calibration.

2-30. VENTILATOR, 754M, 6530-01-464-0267

Common problems and solutions for the 754 ventilator are noted below:

PROBLEM	COMPONENT	SOLUTION
A hardware calibration must be performed after any of these repairs are completed.		
Low charging voltage measured at battery connector when external power connected to ventilator	U1 on the Motor Drive PCB	Replace malfunctioning chip
Ventilator will not SAVE when software calibration is performed. (Cannot read PR address)	U5 on CPU PCB is most common problem	Replace malfunctioning chip
Ventilator will not communicate at all when software calibration is initiated. (nothing happens)	U1 on DISPLAY/SWITCH PANEL PCB	Replace malfunctioning chip

2-31. X-RAY APPARATUS, DENTAL, HANDHELD, 6525-01-425-5216

a. A problem has been identified with the Dent X, model HDX. When trying to make an exposure with the unit yoke exposure switch, the unit does not release an exposure. When using the unit's hand switch the unit makes an exposure. The problem has been identified with an internal connector (brown and yellow wires). It falls off easily when removing the control panel.

b. When you service the unit and take the control panel off, ensure that you tie wrap the three bundles of wires that are coming out of the power supply assembly into the control panel. Securing the wires will prevent the connector from falling off and preventing proper system operation.

2-32. X-RAY APPARATUS, RADIOGRAPHIC, MED, 6525-01-384-9296

TEXTBOOK DIAGNOSIS OF PICKER VP4 ERROR CODE "E300"

(a) A VP-4 was indicating a E300 error code, which indicated no filament current. The Trouble shooting Flow chart the technician is instructed to replace the "CU PCB", however after the CU PCB was installed the fault condition was still not corrected.

(b) Troubleshooting action indicated open filaments in the tube or a poor connection on the cathode cable. The filaments were checked for proper impedance and the connection was checked. Both tests found no fault. After the recommended checks were made, the filament troubleshooting flow chart suggested that the computer board part number 1174-21 was bad. The board was replaced; however, this did not correct the malfunction. After a check of the schematics, it was noticed that there were two fuses on the "Power on off PCB" that affected the "Filament Drive PCB" (F2 = 2.5A 250V which Supplies 55VAC to Filament Drive Board) & (F5 = 1A 250V which Supplies 19 VAC to the 15 Volt Power Supplies on the Power Supply Board which supplies the Filament Drive Board) one of these fuses were found to be open.

(c) The fuse was replaced and the fault was corrected.

2-33. X-RAY APP RAD/FLUOR, C-ARM, 6525-01-452-0956

a. During transportation the BV-300 C-Arm is prone to damage due to improper use of the rear wheel steering. The rear wheel steering increases the mobility of unit during use, but can be hazardous during transportation. Remember to keep the rear wheels facing forward and steer with the front wheel. Slight adjustments of the rear wheel control handle can cause drastic directional changes and loss of control resulting in damage to the machine or personal injury to people near the machine.

b. Later models of the Philips C-Arm do not have rear wheel steering as an option.

CHAPTER 3. TMDE UTILIZATION INFORMATION

3-1. ANALYZER, GAS, ANESTHETIC, 6630-01-487-6987

a. The accessory kit provided with the RIKEN meters initially may not have included the hose assembly that connects between the fresh gas outlet of the Narkomed-M Anesthesia Apparatus and the inlet port of the meter itself. To make this hose assembly, use a fresh gas hose (Draeger Part Number 4108577). Glue the end that connects to the absorber assembly into the small end of the "tee" that comes with the RIKEN meter kit. Attach the white tubing that goes to the RIKEN inlet port to the barb on the "tee."

b. The equipment manufacturer does not have a replacement part number for the 13/16" od tubing that goes from the high pressure regulator to the cylinder gauge inside the anesthesia unit. For repairs, this must be purchased locally and cut to fit.

3-2. AUTO SEQUENCES, FLUKE BIOMEDICAL/DNI TEST EQUIPMENT

a. There have been several instances noted in which TMDE that comes with defaulted auto sequence options are not consistent with the medical equipment OEM's test procedure and/or standard.

b. Repairers should print a copy of the auto sequence and verify all test procedures (settings are appropriate and the tolerance is correct) required to properly test the item of equipment IAW the OEM standards are included prior to testing an item of medical equipment. If you discover the auto sequence is incorrect, you may reprogram the auto sequence manually to comply with OEM standards.

c. The most notable inconsistencies are when testing the Valleylab Force 2 Electrosurgical Unit in which case the RF leakage tests set in the TMDE auto sequence uses an open load and should use a 200 ohm load; and the Lifepak 10 Defibrillators in which case the tolerance set in the TMDE auto sequence is 15 percent and should be 7 percent.

3-3. CALIBRATOR – ANALYZER (VT-PLUS), 6515-01-491-6615

a. The 754M Ventilator was designed to only communicate with the RT200 Calibration Analyzer. The Fluke Biomedical VT-Plus, with the ability to emulate the RT-200, can also be used to calibrate and service the 754M ventilator.

b. Although previous versions of firmware allowed the ability to calibrate the 754M, repairers were often confused because the screen would request "RT-200 specific" input during the calibration procedure.

c. Recent software revisions for the VT-Plus and VT-Plus-HF are available to assist repairers with servicing the 754M ventilator with minimal perplexity. The newer revisions provide true "Emulation" thus the software recognizes the TMDE as a RT-200 and goes directly into the calibration mode. The software revision number can be found on the warm-up screen, when the unit is first turned on.

(1) For the VT-Plus, Software Revision Number 1.07.03 or higher is recommended.

(2) For the VT-Plus-HF, Software Revision Number 1.08.06 or higher is recommended.

(3) Contact your local TMDE Support Center or MSD TRACY California for upgrades.

3-4. MULTIMETER, RADIOGRAPHIC, PMX-III, 6525-01-387-0212

Software Improvements Version 5.2 System, provides Improved Continuous Mode measuring. The new Software Version 5.2 for the PMX-III enables the repairer to select any parameter (kVp, MA, Time, MAS) to be displayed during an exposure using the Continuous Mode.

a. The parameter to be displayed is preselected by using the Parameter key. This new capability enables the repairer to see the real-time values of dose and dose rate during the exposure. Previous Software versions involved limitations in the Continuous Mode allowing only visibility of kVp until exposure completion at which time all measured values could then be viewed by scrolling through the display.

b. Manual reset for the electrometer is available also in the MULTIMETER mode. The function key F3 works as RESET key in the MULTIMETER mode in the following cases. The normal function is the SETUP table #1 is loaded when the F3 is pressed. However, when dose or dose rate is selected by means of the PARAMETER key this function is overridden and a reset of the electrometer is preformed. If no SETUP table is programmed to the F3 key, it works as RESET key in all situations both in the MULTIMETER and DOSIMETER mode.

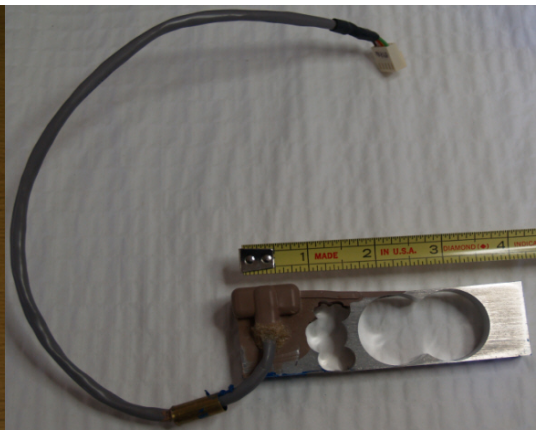
3-5. ULTRASONIC WATT-METER, UW-4, 6625-01-504-2654, SHIPPING DAMAGE

a. USAMMA, MMOD-Tracy TMDE Shop has received a large number of Ultrasonic Watt-meters for calibration. Of the Watt-meters received, approximately 35% of the units received have had damage to the load cell.

(1) The load cell of the watt-meters is being damaged in shipping due to improper packaging of the target cone. Every damaged unit has been shipped to the TMDE shop with the brass target cone or the AC power adapter placed inside of the transducer well. During shipping, any object in the well area can bounce against the load cell causing damage. If one of these units has had damage to the load cell, an “H” or an “E 54” error message will appear on the display after proper setup of the unit. Repair of these damaged units is approximately $1,400.00, and can only be performed by the factory. As these units have a current acquisition cost of $2,900.00, more often than not the cost to repair exceeds the MEL.

(2) The UW-4 Watt-Meter is a delicate instrument that must be shipped in the correct packaging material. The manufacturer has placed a warning label on the front of the UW-4 clearly stating, “Do not store, transport or ship unit with cone installed or permanent damage may result.” To prevent unnecessary damage while the unit is being stored, transported or shipped, the transducer well must be kept empty. Care must be exercised during handling; even dropping from a short distance can result in internal damage and a subsequent failure.

Target Cone in Transducer Well



Damaged Load Cell

b. The UW-5 is a similar unit and the same precautions in shipment and handling pertain.

3-6. UNFORS 710L, 6525-01-502-0504, METER X-RAY CALIBRATION

X-Ray reproducibility and standard deviation made easy with the Unfors 710L:

(1) Set the parameter to Dose (R or mR on display).

(2) Hold the parameter button for 4 seconds to toggle on Normalization Mode.

(3) Take an exposure as per the manufactures procedures for reproducibility. The Unfors meter will automatically give the value of 1.000 to the first exposure.

(4) The deviation value will automatically display after each exposure.

(5) Record the valves.

(6) Average the decimal portion of each number to give you the Standard Deviation.

(7) Hold the parameter button for 4 seconds to toggle off Normalization Mode.

Example:

- 10-exposure reproducibility test for an Alfa MPDX Dental X-Ray (the standard deviation spec on this unit is < 0.02):
- 10 exposures were taken: 1.000, 1.002, 1.009, 1.003, 1.008, 1.001, 1.005, 1.000, 1.003, 1.005

Add the decimal portion of each exposure. (.036)
Divide the answer by 10 (.0036)
Standard Deviation for the unit is .0036
No calculator or calculus needed.

APPENDIX A. EXTERNAL STANDARD OPERATING PROCEDURES MEDICAL MAINTENANCE OPERATIONS DIVISION HILL AFB, UT

U.S. Army Medical Materiel Agency
Maintenance Engineering & Operations Directorate
Medical Maintenance Operations Division, Hill AFB Utah
External Standing Operating Procedures

MCMR-MMO-SMO March 2007

1. Purpose

To provide guidance to units and organizations requesting services from the U.S. Army Medical Materiel Agency (USAMMA) Medical Maintenance Operations Division, (MMOD-UT) at Hill Air Force Base, UT

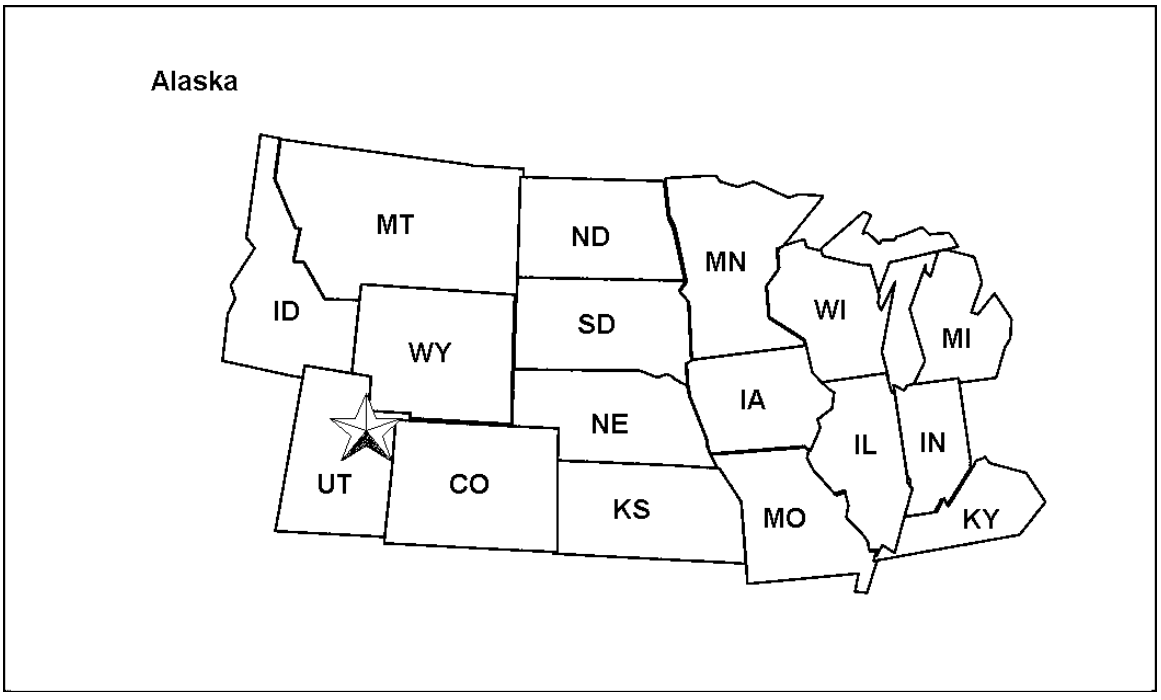
2. Scope

These procedures are applicable to all units and activities requesting support.

3. Mission

The USAMMA Medical Maintenance Operations Division provides depot-level services and functions in support of all field TOE medical equipment (except x-ray). We have the capability to refurbish and rebuild field medical equipment to like-new condition, provide repair and return services, administer a Medical Standby Equipment Program (MEDSTEP) and provide on-site support.

3.1. Hill serves as the regional manager, and your single point of contact to address all of your TOE medical maintenance requirements. The map below depicts Hill's Region.



4. Hours of Operation

Our duty hours for the Maintenance Division are 0500 to 1630 (MT), Monday through Friday. If you need assistance or service for field TOE medical equipment, please contact the following personnel:

Chief	(801) 586-4947	DSN 586-4947
Shop Supervisor	(801) 586-4948	DSN 586-4948
Production Control	(801) 586-4949	DSN 586-4949
Parts Section	(801) 586-4950	DSN 586-4950
Fax	(801) 586-5058	DSN 586-5058

Website: http://www.usamma.army.mil/maintenance/operations_divisions.cfm

5. Services Available

5.1. All maintenance significant medical materiel except high capacity x-rays and optical equipment.

5.2. On-site technical assistance (request must be made to HQ, USAMMA)

5.3. Telephonic technical assistance – Shop Supervisor: (801) 586-4948

5.4. Medical Equipment Standby Program – Production Controller: (801) 586-4949

5.5. Repair of TO&E medical equipment – Shop Supervisor: (801) 586-4948

5.6. Parts support to AMEDD Limited Support Items (ALSI) – Parts Section: (801) 586-4950

6. Requesting Services

6.1. Prior to sending any nonstandard medical equipment, call DSN 586-4949/4947 to ensure that the items can be supported at this division.

6.2. When shipping equipment for repair or service, please use the following address:

U.S. Army Medical Materiel Agency
6149 Wardleigh Road
Bldg. 1160, Bay 1
Hill AFB, UT 84056-5848
DODAAC: W81PYK

6.3. The owning or supporting unit is responsible for ensuring that the equipment is cleaned and disinfected prior to shipping the item to our Division for service.

6.3.1. Contaminated or unsanitary equipment will be returned to the owning unit with no maintenance action taken.

6.4. Each equipment item must be shipped with the following:

- All accessories needed to operate, test and/or calibrate the unit
- manufacturer's service literature for non-standard equipment
- DA Form 2409 (for manual systems), or a work history printout (for automated systems)
- DA Form 2407 containing the following:
  - unit name and address
  - DODAAC and UIC
  - point of contact
  - commercial/fax telephone numbers
  - priority
  - brief description of the problem or requested service (i.e., repair and return)

Note: We request that you contact us prior to shipping non-standard equipment.

6.5. Upon receipt of your equipment, an automated work order will be generated and faxed to your point of contact. Please reference our work order number regarding all inquiries.

6.6. When services are completed, the equipment will be shipped to your return address and POC. A copy of our closed automated work order will be returned with the equipment for updating your unit's records.

6.7. Equipment that is not economically repairable will be condition coded in accordance with applicable regulations. The owning or supporting unit will be notified for disposition instructions. Equipment items will be returned to your unit or disposed of locally, in which case your unit will be provided a copy of the closed automated work order and a signed copy of the DD Form 1348 for your records.

6.8. Repairs or services that will exceed the One Time Expenditures Limit (OTEL) or Maximum Expenditure Limit (MEL) will require a waiver approved by your organization commander or designee prior to the accomplishment of any repairs or services.

6.9. All units, organizations, facilities or agencies other than active army (P84 and medical P1 funds) are required to reimburse USAMMA for all services. Army National Guard and Army Reserve units are not required to submit funding citations as their respective headquarters provide funds on an annual basis to cover their medical equipment. Funding documentation from other reimbursable customers must include the following:

- Document number to include owning DODAAC, UIC, and address
- Funding citation
- Authorized amount (amount authorized for service)
- Point of contact and telephone number
- Nomenclature of item
- National stock number, management control number, or non-standard number
- Model number and quantity sent with serial numbers
- Any accessories, maintenance manuals, or other materiel that may be required to perform service on the equipment
- Identification of all accessories

6.10. On-site maintenance support for field TOE equipment is available from our Division and should be coordinated with us first to ensure availability of manpower and resources. All requests for on-site maintenance support must be through appropriate command channels to the Commander, U.S. Army Medical Materiel Agency, ATTN: MCMR-MMM, 1423 Sultan Drive, Fort Detrick, MD 21702-5001. Requests must include name and location of the requesting

unit and work site, specific requirement to include estimated man-hours, recommendation, and priority from local command.

6.11. On-Site Sustainment Maintenance support for National Guard TO&E medical equipment is available from the Utah Maintenance Division on an annual basis for the states of UT,ID,KS,MO,NE,IA,MN,WI,WY,CO,MT,AK,ND,SD,MI,IN,IL, and KY. Personnel from our Division will be contacting all USANG TO&E units with in these states annually to arrange for specific dates and times for providing service. For this program to be successful, it is essential that our records reflect the most current information for each unit's point of contact, phone number, e-mail address, unit name, location and UIC. If any of this information has recently changed or your unit has not been contacted by our Division, please contact us at (801) 586-4948/4947 or DSN 586-4948/4947.

7. Repair Parts for Field TOE Equipment

7.1. Repair parts to support equipment for which the manufacturer or other sources will no longer supply parts may be requested from our Medical Maintenance Division, commercial 801-586-4950/4948. All requests will require your unit name, address, DODAAC, point of contact, commercial/fax telephone numbers, the NSN of the end item and the part number(s) of the items requested.

7.2. The USAMMA is in the process of establishing a Centralized Repair Parts Program at the Utah Medical Maintenance Division for all TO&E Medical Equipment. Depending on the availability of funding, we may be able to assist you with your repair parts requirements. Please call one of our Supply Technicians at COM 801-586-4950/5962 or DSN 586-4950/5962 and they will explain how the process works and what information you will need to provide.

8. Medical Standby Equipment Program (MEDSTEP)

8.1. MEDSTEP assets will not be used to fill equipment shortages, replace uneconomically repairable items or expand operational missions.

8.2. MEDSTEP assets will be requested through our Medical Maintenance Division at commercial 801-586-4949. All requests will require your unit name, address, DODAAC, point of contact, commercial/fax telephone numbers, and a brief description of your requirement.

8.3. The requesting unit is responsible for the care and maintenance of the MEDSTEP item and to ensure the item is cleaned and properly packed prior to returning the item to our Division.

9. Cannibalization Point

The MMOD-UT maintains unserviceable assets of selected medical equipment for cannibalization. Authorized customers may request parts from cannibalization for mission critical medical equipment when parts are not available from any other source.

Chief, Medical Maintenance Operations Division - UTAH
USAMMA

APPENDIX B. EXTERNAL STANDARD OPERATING PROCEDURES, MEDICAL MAINTENANCE OPERATIONS DIVISION, TOBYHANNA, PA

U.S. Army Medical Materiel Agency
Force Sustainment Directorate
Medical Maintenance Operations Division, Tobyhanna, Pennsylvania
External Standing Operating Procedures

MRMC-MMO-SMT March 2007

1. Purpose

To provide guidance to units and organizations requesting services from the U.S. Army Medical Materiel Agency (USAMMA) Medical Maintenance Operations Division, Tobyhanna (MMOD-PA) at Tobyhanna Army Depot, Tobyhanna PA.

2. Scope

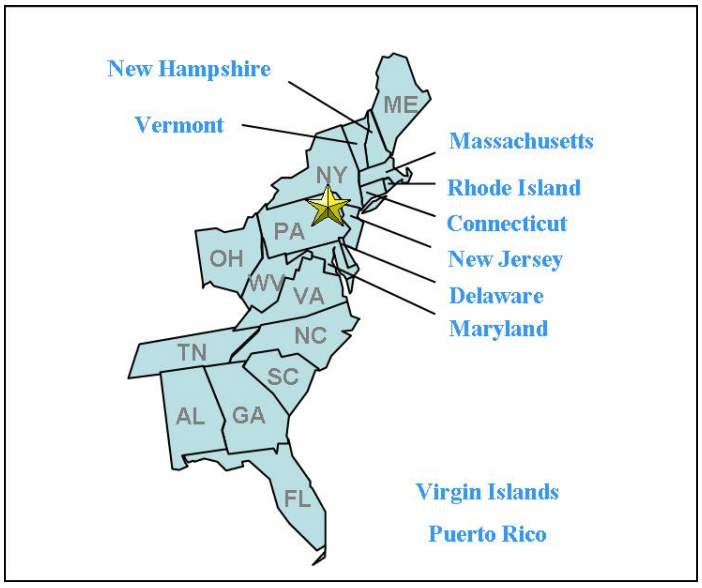
These procedures are applicable to all units and activities requesting support.

3. Mission

The USAMMA Medical Maintenance Operations Division, Tobyhanna, provides depot-level services and functions in support of TDA and TOE medical equipment. In addition to providing outstanding maintenance support for a wide variety of the Army's medical equipment, we operate **USAMMA's Center of Excellence** for the AMEDD's Diagnostic Imaging Acceptance Program; the physical examination equipment refurbishment and loan program; the Army's Dental Handpiece Rebuild program; the audiometric equipment calibration program; Optical Equipment maintenance; TOE Laboratory Equipment, and PACS acceptance testing and centralized monitor support.

3.1. Tobyhanna serves as the regional manager, and your single point of contact to assist you with all of your medical maintenance support requirements.

3.2. The map below depicts Tobyhanna's Region.



4. Hours of Operation

Normal duty hours are 0630 to 1630 (ET) Monday through Friday. If you need assistance or service please contact the following personnel:

Chief	(570) 895-7744	DSN 795-7744
Shop Supervisor	(570) 895-7134	DSN 795-7134
Production Control	(570) 895-6396	DSN 795-6396
Work Order Status	(570) 895-7843	DSN 795-7843
Supply	(570) 895-7614	DSN 795-7614
Fax	(570) 895-7699	DSN 795-7699
Website:	http://www.usamma.army.mil/maintenance/operations_divisions.cfm	

5. Services Available

The Medical Maintenance Operations Division, PA has the capability to refurbish and rebuild medical equipment to like-new condition, provide repair and return services, administer a Medical Equipment Standby Equipment Program (MEDSTEP), and provide on-site support. Tobyhanna is also one of three Regional Managers for the AMEDD Maintenance Sustainment Program.

5.1. TO&E Equipment - All TO&E equipment, to include high capacity x-rays and imaging. (All versions of Orex, Compano, and ACR 2000 CR Readers).

5.2. TDA Equipment Items – Our TDA equipment maintenance support includes Optical Equipment, Audiometric Equipment, and Dental Handpieces. **Tables 1, 2, and 3** list the respective TDA equipment items that are routinely serviced at Tobyhanna. Equipment items not listed in “services available” or on the USAMMA Maintenance Operations Divisions’ website should not be sent without prior coordination.

TABLE. 1 TDA OPTICAL EQUIPMENT

MICROSCOPES	PHOROPTERS	LENSOMETERS
Nikon – Labophot 1 & 2 , Eclipse 50i	All Marco	Marco 101
Olympus – BH series & BX 40	Leica 11625	Leica 21 65 70
All Cambridge	All American Optical	Nikon – EL-7S
All Leica	All Reichert	Reichert – ML1
All AO		
SLIT LAMP	**VISION TESTER**	
TOPCON – SL30, SL6E & SL-D7	AFVT 2300	

TABLE 2. TDA AUDIOMETRIC EQUIPMENT

All Tracor/Tremetrics NOTE: RA 400A supportability is limited.
All Maico
Beltone – 120
Grason Stadler (Limited Supportability) – GSI 16, 27, 27A, 28, 33, and 38
Grason Stadler – Tympstar, GSI 61, GSI 17

TABLE 3. DENTAL HANDPIECES
Kavo 632, 635, 642, and 643
Lares 557-757
Mid West, XGT
Mid West, Shorty 1 and 2 Speed (Slow Speed)
Mid West, Tradition (High Speed)
Mid West, Shorty Nose Cone (Fits on Shorty 2 Speed)
Mid West, Prophy Angle
Mid West, Quiet Air
Mid West, 8000 I
Star, 430
Star, Titan Scaler

5.3. Assistance Visits: On-site assistance visits will be conducted annually by Toby Division for National Guard supported units within our region. This will be accomplished by division maintenance teams or arranged maintenance support with other maintenance activities in the state. The Chief/Shop Supervisor, Toby Division, will coordinate scheduling of visits. All other assistance visits to include On-Site technical assistance, training, and X-ray acceptance inspection requests will be coordinate through HQ, USAMMA. Please contact the Chief, Medical Maintenance Division prior to submitting any request for assistance. Any unit desiring an on-site assistance visit with the exception of National Guard units will be required to submit a memorandum to:

MCMR-MMO-SM
Mr. Jack Rosarius
Medical Maintenance Operations Division
1423 Sultan Drive, Suite 100
Fort Detrick, MD 21702-5001

5.3.1 Please contact the Chief, Maintenance Operations Division at 301-619-4365 for further assistance.

5.4. Telephonic technical assistance - Technical experts are available to share their knowledge and experience. They will help diagnose and troubleshoot equipment failures.

5.5. Military Entrance Processing Station (MEPS) Direct Exchange Program - The Medical Maintenance Operations Division, Tobyhanna, provides an equipment direct exchange program for the MEPS. When a piece of equipment fails, the MEPS call us for an exchange replacement. The replacement equipment is sent out immediately to the requesting unit. The unit then sends their broken equipment to us for repair and placement back into the exchange program. This process alleviates the need for any direct MEDDAC/MEDCEN involvement. Table 4 below, is a listing of equipment in the direct exchange program.

TABLE 4. MEPS EQUIPMENT

NSN	NOMENCLATURE	MODEL	MFR
6515-01-C01-0001	Audiometer	HT Wizard	Tremetrics
6515-01-X18-2319	Bio-Acoustic Sim	Oscar VII	Quest
6640-01-C03-0017	Centrifuge	225A	Fisher
6515-01-C05-0004	EKG	LE11	Burdick
6515-01-C05-0005	EKG	Atria 3000	Burdick
6540-01-452-8207	Color Vision Tester	Optec 900	Stereo Optical
6530-01-429-4649	Exam Light	48600	Welch Allyn
6650-01-207-0829	Microscope	Labophot	Nikon
6650-01-325-3747	Microscope	Various	Amer Optical
6670-01-C19-0036	Digital Scale	WB-100A	Tanita
6670-01-C19-0032	Digital Scale	BWB-627A	Tanita
6640-01-375-9031	Vision Tester	2300A & 2300	Stereo Optical
6515-01-C13-0001	Vital Signs Monitor	Spot 4200B	Welch Allyn

Note: The MMOD-PA provides a Direct Exchange Program for selected equipment. To qualify for a DX, the equipment must be the same make and model, and must be repairable. No direct exchange will be complete until both parties are satisfied with the equipment they received.

5.6. Medical Equipment Standby Program (MEDSTEP) - This program is available to provide temporary loaner equipment during long repairs or temporary mission support. MEDSTEP assets may only be utilized to provide temporary replacement for equipment being serviced at the MMOD-PA. Our MEDSTEP assets include a variety of end items, components, or assemblies. A list of MEDSTEP assets available at the MMOD-PA is published periodically in the SB 8-75 series bulletins. Contact our Supply Section to request MEDSTEP assets.

Note: MEDSTEP equipment may not be used to fill equipment shortages or expand operational missions. Exceptions require command approval. When the owner's original equipment is received back, the MEDSTEP item, to include all accessories, must be returned to the MMOD-PA. Reimbursable customers that use MEDSTEP must provide funds as necessary to restore the MEDSTEP item back to serviceable condition.

5.7. AMEDD Sustainment Maintenance Program - The program is an OTSG/MEDCOM initiative with the USAMMA Force Sustainment Directorate (FSD) as the action office. USAMMA has operational responsibility for the program and acts as the focal point for all MTOE medical equipment maintenance. This program is designed to provide technical assistance visits to supported activities without organic maintenance capability, or when repairs are beyond their capabilities, manpower limits, or technical expertise. The overall objectives of the AMEDD Maintenance Sustainment Program are to:

a. Increase readiness by ensuring MTOE medical equipment is mission capable.
b. Provide visibility of medical equipment status for the Total Army.
c. Increase flexibility to cross-level DS/GS sustainment maintenance workload.
d. Establish sustainment training for medical equipment repairers.
e. Provide a maintenance structure that will accommodate any medical maintenance related initiative.
f. Increase maintenance capability by ensuring efficient use of all maintenance resources.
g. Tobyhanna provides Sustainment Maintenance Support to the following areas:

Alabama	Maine	North Carolina	Tennessee
Connecticut	Massachusetts	Ohio	Virginia
Delaware	Maryland	Pennsylvania	Virgin Islands
District of Columbia	New Hampshire	Rhode Island	Vermont
Florida	New Jersey	Puerto Rico	West Virginia
Georgia	New York	South Carolina	

5.8. X-ray Acceptance Procedures - Upon completion of an x-ray system installation, the contractor is required to notify the Defense Support Center, Philadelphia (DSCP) that the system is ready for an acceptance inspection. Notification by the contractor should be made in writing to:

DSCP-MX
PO Box 8419
2800 S. 20th Street
Philadelphia, PA 19101-8419.

Note: Acceptance inspections cannot be performed by this activity without the approval of the manufacturer and notification from DSCP.

a. Once notification has been received by DSCP that the unit is ready for inspection, DSCP will in turn notify the appropriate service (U.S. Army, U.S. Air Force or Navy) representative. The U.S. Army Representative at USAMMA/ Tobyhanna Army Depot will then contact the facility and notify them that the Government has received an official notice that a Radiology System has been installed and that the facility has 30 working days to complete the inspection. If the facility cannot perform the required inspection they will need to reply back to the representative (USAMMA) that they need assistance to complete the testing and indicate the reasons. If the system passes the inspection then the start date of the warranty will be the date of the original notice sent to DSCP. If the system fails the inspection then the warranty start date will be the date when it passes the re-inspection. If the inspection is not completed within this time frame, then the Government automatically accepts the system under default and the warranty start date is the date of the original notice sent to DSCP.

b. Upon completion of the acceptance testing, the report must be forwarded to:

DSCP-MX,
PO Box 8419
2800 S. 20th Street
Philadelphia, PA 19101-8419

c. For the U.S. Army, a copy of the report, along with a completed copy of the FDA 2579 must be sent to:

MEDICAL MAINTENANCE OPS DIVISION
ATTN: MCMR-MMO-SMT (X-ray Acceptance Testing)
Tobyhanna Army Depot
11 Hap Arnold Blvd.
Tobyhanna, PA 18466-5063

d. Applying for a Variance - Variances to the inspection time frame cannot be negotiated locally. Requests for variances must be made as early as possible and directed to DSCP-MX prior to the expiration of the established 30 working day inspection period. Requests must state the reason(s) for not complying within the stipulated time frame and the actions, which are desired or required, e.g. time extension.

Note: It should be noted that the local contractor's representative might not be aware of the contract requirements and inspection testing procedures. Therefore, it is to the advantage of any activity that will require an acceptance inspection to involve the local clinical engineering activity in new x-ray system installations. Unresolved local problems regarding the installation or inspection of an x-ray system should be directed to DSCP-MX, for resolution by the responsible contracting officer.

5.9. Cannibalization Point - The MMOD-PA maintains unserviceable assets of selected medical equipment for cannibalization. Authorized customers may request parts from cannibalization for mission critical medical equipment when parts are not available from any other source.

6. Requesting Services

All units, organizations, facilities or agencies other than active army (P84 and medical P1 funds) are required to reimburse USAMMA for all services. Army National Guard and Army Reserve units are not required to submit funding citations as their respective headquarters provide funds on an annual basis to cover their medical equipment. Funding documentation from other reimbursable customers must include the following:

a. Document number to include owning DODAAC, UIC and address
b. Funding citation.
c. Authorized amount (amount authorized for service).
d. Point of contact and telephone number.
e. Nomenclature of item.
f. National stock number, management control number, or non-standard number.
g. Model number and quantity sent with serial numbers.
h. Any accessories, maintenance manuals, or other materiel that may be required to perform service on the equipment.
i. Identification of all accessories.

6.1. Preparing the Equipment - Prior to sending any nonstandard medical equipment not listed in the table above, call DSN 795-6396 to ensure that the items can be supported at this division.

a. Infection Control - is primarily the responsibility of the activity requesting equipment repair or maintenance service. Equipment must be cleaned and disinfected to the maximum extent possible prior to shipment to or receipt by this maintenance division. We retain the right to refuse equipment that has not been properly cleaned and disinfected.

b. Hazardous Waste - Equipment, which contains hazardous waste, must be disposed of in accordance with federal and local laws. It is the responsibility of the activity requesting service to dispose of hazardous waste prior to shipment to or acceptance by this division.

c. Packing/Transport - Equipment should be packed to prevent further damage during shipment/transport.

Note: Each individual item of equipment excluding dental handpieces will have its own DA Form 2407 (Work Order Request).

6.2. Preparing the Paper Work - All customers may request maintenance services by submitting either a DA Form 2407 (or automated equivalent). Requests for high priority work (Priority 03) must be authenticated by the Unit Commander or a person designated by the Unit Commander. Work requests submitted without authentication for higher priority will be handled as routine.

APPENDIX B. EXTERNAL STANDARD OPERATING PROCEDURES, MEDICAL MAINTENANCE OPERATIONS DIVISION, TOBYHANNA, PA

6.3. Sending/Delivering the Equipment/Paperwork - Items can be mailed, shipped, or delivered to the address listed below. When equipment is received at the maintenance division, the following items will be checked:

a. Shipping document (If item is received via mail, UPS, or FedEx)
b. Damage from shipping or handling.
c. Cleanliness.
d. Properly completed DA Form 2407 or equivalent.
e. Equipment accessories.

Note: Accessories sent along with equipment should be annotated on the work request. Failure to complete paper work or prepare equipment properly may cause a delay in service. When shipping or delivering equipment for repair, please ensure the manufacturer's literature (operation & service) is included. If literature is unavailable, every effort should be made to obtain it prior to shipment of the equipment.

f. When shipping equipment for servicing please use the following address:

US Army Medical Materiel Agency
Medical Maintenance Operations Division – PA
Warehouse 4, Bay 1
Tobyhanna Army Depot
Tobyhanna PA 18466-5063
DODAAC: W25AT5

6.4. Questions concerning funding or fund citations may be answered by calling the Production Controller at (570) 895-6396 or DSN 795-6396.

6.5. All customers may request maintenance services by submitting either a DA Form 2407 (or automated equivalent), DD Form 1348-1 or DD Form 1149 shipping documents.

6.6. All equipment that comes in reusable containers should be shipped in those containers. All other equipment should be properly packaged so that no further damage will occur. Place a copy of the maintenance request inside the container with the equipment.

6.7. Accessories and maintenance manuals must be sent with the equipment to prevent delays in the repair or service. All accessories sent with the equipment shall be indicated in the remarks section of the shipping document.

6.8. The Maintenance Expenditures Limit (MEL) shall be included in the remarks section of the shipping form. Failure to include the MEL will result in delays.

6.9. When active army units submit equipment that belongs to a serviced unit, the owning units address and UIC will be annotated in the remarks section of the shipping document.

6.10. Equipment items not listed in services available or on the USAMMA maintenance website should not be sent without prior coordination.

6.11. The USAMMA MMOD-PA is not responsible for billing customers. For questions concerning billing please call USAMMA's Maintenance Operations Division at 301-619-4368 or DSN 343-4368.

Chief, Medical Maintenance Operations Division - Pennsylvania
USAMMA

APPENDIX C. EXTERNAL STANDARD OPERATING PROCEDURES, MEDICAL MAINTENANCE OPERATIONS DIVISION, TRACY, CA

U.S. Army Medical Material Agency Force Sustainment Directorate Medical Maintenance Operations Division, Tracy, California
External Standing Operating Procedures

MCMR-MMO-SMTR March 2007

1. Purpose

To provide guidance to units and organizations requesting services from USAMMA's Medical Maintenance Operations Division-California (MCMR-MMO-SMTR) at Defense Distribution Center, Tracy Location, Tracy, CA 95304-9150.

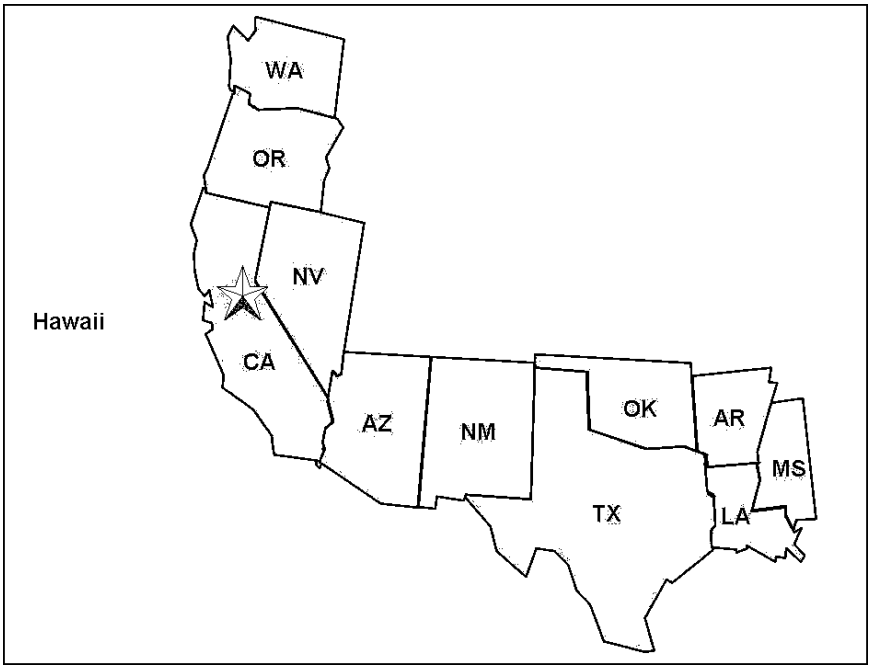
2. Scope

These procedures are applicable to all units and activities requesting support.

3. Mission

The USAMMA Medical Maintenance Operations Division, Tracy, provides depot-level services and functions in support of TOE medical equipment, specializing in x-ray equipment and Special Purpose Test, Measurement, Diagnostic Equipment (TMDE-SP).

3.1. Tracy serves as the regional manager for all your TOE medical maintenance support requirements. However, although we do not support optical and audiometer equipment in-house, we can assist you in coordinating assistance from Tobyhanna if necessary. The map below depicts Tracy's Region.



4. Hours of Operation

Normal duty hours are 0450 to 1520 (PT) daily Monday through Friday, excluding holidays. A telephone recorder is available on (209) 839-4557 or DSN 462-4557 for calls received after duty hours. When leaving messages please speak clearly so your message will be understood. Leave your name, telephone number, and the work order number if available and we will respond the following workday.

POSITION	COMMERCIAL	DSN
Chief	209 839-4556	462-4556
Shop Supervisor	209 839-4560	462-4560
Production Control	209 839-4557	462-4557
TMDE Coordinator	209 839-5438	462-5438
Fax	209 839-4563	462-4563
Website: http://www.usamma.army.mil/maintenance/operations_divisions.cfm		

5. Services Provided

5.1. Assistance Visits: On-site assistance visits will be conducted annually by Tracy Division for National Guard supported units within our region. This will be accomplished by division maintenance teams or arranged maintenance support with other maintenance activities in the state. The Chief/Shop Supervisor, Tracy Division, will coordinate scheduling of visits. All other assistance visits to include On-Site technical assistance, training and X-ray acceptance inspection requests will be coordinate through HQ, USAMMA. Please contact the Chief, Medical Maintenance Division prior to submitting any request for assistance. Any unit desiring an on-site assistance visit with the exception of National Guard units will be required to submit a memorandum to:

MCMR-MMO-SM
ATTN: Mr. Jack Rosarius
Medical Maintenance Operations Division
1423 Sultan Drive, Suite 100
Fort Detrick, MD 21702-5001

5.2. Depot level services for all TO&E except optical and audiometer equipment.

5.3. Telephonic technical assistance.

5.4. Repair and Return services all TO&E except optical and audiometer equipment.

5.5. Calibrate and repair special purpose test, measurement, and diagnostic equipment (TMDE-SP) Listed in table below.

T.M.D.E. Listing for Maintenance			
	Item / Nomenclature	**NSN**	**Model**
T.M.D.E. SP (Special Purpose)	Meter, X-Ray Calibration Multimeter, Radiographic X-ray Calibration & Verification System	6525-01-502-0504 6525-01-387-0212 6625-01-312-0894	UNFORS 710-L PMX-III Victoreen 07/457/472/473
	Gas Flow Analyzer Calibrator, Gas Flow	6595-01-491-6615 6695-01-255-2855	VT-Plus/ VT-Plus HF RT-200
	Anesthetic Gas Analyzer	6630-01-487-6987	Riken 1802D
	Analyzer, NIBP	6515-01-449-1423	Cufflink
	IV Pump Analyzer	6515-01-449-2331 6515-01-479-2355	IPT-1 IDA-4
	Defibrillator Analyzer Tester, Defibrillator	6515-01-499-1420 6625-00-433-9063	Impulse 4000 DT2000A
	Densitometer, SU150/P	6525-01-161-1945	07-423
	Simulator, Medical Function Calibrator Generator, ECG	6625-01-298-3830 6625-01-207-8236 6515-01-049-9449	215M 217A ECG 100
	Foot Candle Meter	6695-01-303-0294	9-118
	Thermometer, Dig.	6685-01-292-7873	51-II
	Oscilloscope, Digital	6525-01-448-9577	THS720P
	Wattmeter, Ultrasound Therapy	6625-01-504-2654 6625-01-141-7357 6625-01-487-6986	UW-4 UMR3-C UMR 3-D
	Simulator, Pulse Oximeter	6515-01-504-8537 6515-01-518-4101 6515-01-499-1422	INDEX 2 MFE XLFE Cardiosat
	Tachometer, Stroboscopic	6680-01-307-6190 6680-00-243-9977	1893A 1726
	Test Set, Electro-surgical	6515-01-438-2409 6625-01-042-8213	454A RF302
	Tester, Current Leakage	6625-01-142-8233 6625-01-207-8270	232M 232D
	Tester, Ventilator	6515-01-449-1421	Pneuview 3600i

5.5.1. TMDE-SP Calibrated or Verified at Tracy

If listed as Verify/OEM, Tracy will verify and if within calibration will complete. If item is out of calibration and needs adjustment, the item will be sent to OEM for repair and calibration. If listed as Calibrate/OEM Tracy will make adjustments to bring item within calibration. If unable to bring within tolerance Tracy will send to OEM for repair and calibration.

TMDE-SP Calibrated or Verified at Tracy		
Item / Nomenclature	**Model**	**Service**
Meter X-Ray Calibration	UNFORS 710-L	Verify/OEM
Multimeter Radiographic	PMX-III	Verify/OEM
X-Ray Calibration & Verification System	Victoreen 07/459/472/473	Calibrate
Gas Flow Analyzer	VT-Plus	Verify/OEM
Calibrator Gas Flow	RT-200	Calibrate/OEM
Anesthetic Gas Analyzer	Riken 1802D	Verify/OEM
Analyzer NIBP	Cufflink	Calibrate/OEM
IV Pump Analyzer	IPT-1 and IDA-4	Calibrate/OEM
Defibrillator Analyzer TPA	Impulse 4000	Calibrate/OEM
Tester Defibrillator	DT2000A	Calibrate
Densitometer, SU150/P	07-423	Calibrate
Simulator, Medical Function	215M, 217A	Calibrate/OEM
Calibrator Generator, ECG	ECG 100	Calibrate
Computer, Laptop	Various	Load Software
Foot Candle Meter	9-118	Calibrate
Thermometer, Digital	51 II	Calibrate
Oscilloscope, Digital	THS720P	Send out to TSC
Wattmeter, Ultrasound Therapy	UW-4	Calibrate/OEM
Wattmeter, Ultrasound Therapy	UMR 3-C	Calibrate/OEM
Wattmeter, Ultrasound Therapy	UMR 4-D	Calibrate/OEM
Simulator, Pulse Oximetry	INDEX 2M FE	Calibrate/OEM
Simulator, Pulse Oximetry	Cardiosat EF	Calibrate/OEM
Tachometer, Stroboscopic	1893A,	Calibrate
Tachometer, Stroboscopic	1726	Calibrate/OEM
Test Cassette, X-Ray	07-467	Calibrate
Test set, Electrosurgical	454A and RF302	Calibrate/OEM
Tester Current Leakage	232M and 232D	Calibrate/OEM
Tester, Ventilator	Pneuview 36000I	Calibrate/OEM

5.5.2 Test Measurement, and Diagnostic Equipment (TMDE)

All field medical unit special purpose TMDE-SP such as defibrillator testers, patient simulators, electro surgical test sets, and x-ray calibration sets are supported with repair and calibration services. To maintain capability when TMDE-SP is turned in for repair or calibration, a like item may be exchanged or borrowed if available.

5.6. Direct Exchange of X-ray Tube Heads

An exchange for x-ray tubes may be requested by calling customer assistance at (209) 839-4560/4556DSN 462-4560/4556 or. A questionnaire will be faxed to your activity to determine the appropriate information for the exchange. Tracy division rebuilds or provides a direct exchange for the following types of x-ray tube heads:

Direct Exchange of X-ray Tube Heads	
National Stock Number (NSN)	**Tube Type**
6525-00-C95-9590	Picker PX1300 Series
6525-00-C95-9600	Picker PX1400 Series
6525-00-C95-9560	Eureka Emerald 125 Series
6525-00-C95-9550	Eureka Sapphire 150th Series
6525-00-C95-9570	Eureka Diamond 150th Series
6525-00-C95-9785	Philips ROT 350-10
6525-00-C95-9630	G.E. Maxiray 75
6525-00-C95-9640	G.E. Maxiray 100
6525-00-C95-9640	G.E. Maxiray 100 Flouro
6525-01-328-3430	Dynarad/Port-A-Ray 1200

6. Requesting Services

6.1. Prior to sending any nonstandard medical equipment, call DSN 462-4557 to ensure that the items can be supported at this division.

6.2. When shipping equipment for repair or service, please use the following address:

Medical Maintenance Operations Division
USAMMA, Building T-255
25600 South Chrisman Road
Tracy, CA 95304-9150 DODAAC: W62SEV

6.3. All units, organizations, facilities or agencies other than Active Army (P84 and medical P1 funded) are required to reimburse USAMMA for all services. Army National Guard and U.S. Army Reserve units are not required to submit fund citations as their respective headquarters provide funds on an annual basis to cover their medical equipment. Funding documentation from other reimbursable customers must include the following:

* Document number to include owning DODAAC or UIC, and address
* Funding citation
* Authorized funding (amount authorized for service)
* Point of contact and telephone number
* Nomenclature of item
* National stock number, management control number, or non-standard number
* Quantity of items to include serial numbers
* Any accessories, maintenance manuals, or other materiel which may be required to perform services on the equipment
* Identification of all accessories

6.4. Questions concerning funding or fund citations may be answered by calling DSN 462-4557 or commercial 209 839-4557.

6.5. All customers may request maintenance services on their medical equipment by submitting either a DA Form 2407 (or the automated equivalent) or DD Form 1348-1, Shipping Document. TMDE-SP equipment must include DA7372, POC and a return address.

6.6. All equipment that has reusable containers will be shipped in those containers. If equipment does not have reusable container equipment will be packed so that no further damage can occur.

6.7. Place a copy of the document being used as the maintenance request inside the shipping container with the equipment. The transportation personnel or the commercial carrier often removes documents placed on the outside of the container.

6.8. Accessories and maintenance manuals must be sent with the equipment to prevent delays in the repair or service. All accessories or materials sent with the equipment shall be indicated in the remarks section of the DA Form 2407 and DD Form 1348-1 or by other documentation.

6.9. The Maintenance Expenditure Limit (MEL) shall be included in the remarks section of either the DA Form 2407 or DD Form 1348-1. Failure to include the MEL will result in delay of repairs.

6.10. When Active Army units submit equipment to the MSD-Tracy that belongs to another unit, the owning unit, address, UIC, and DODAAC will be given in the remarks section of either the DA Form 2407 or DD Form 1348-1. Unless otherwise specified, after repairs are completed the equipment will be returned to the owning unit.

6.11. Equipment items not listed in 5. Services or on the USAMMA Maintenance website should not be sent without prior coordination.

6.12. The USAMMA Medical Maintenance Operations Division-California (MSD-Tracy) is not responsible for billing reimbursable customers. For questions concerning billing call USAMMA's Resources Management Division at DSN 343-2111 or commercial 301-619-2111.

6.13. Any questions regarding MSD-Tracy's services, work order status, complaints, technical assistance or general information may be answered by calling DSN 462-4557/4556/4560 or commercial 209 839-4557/4556/4560. Please have the serial number of equipment item and work order number available when you call.

7. Direct Exchange of X-ray Tube Heads

An exchange for x-ray tubes may be requested by calling customer assistance at DSN 462-4560/4556 or commercial (209) 839-4560/4556. A questionnaire will be faxed to your activity to determine the appropriate information for the exchange.

8. Medical Standby Equipment Program

The USAMMA MSD-Tracy provides a Medical Standby Equipment Program (MEDSTEP) for selected x-ray equipment. A list of the MEDSTEP assets available at the MMOD-CA is published periodically in the SB 8-75 Series Bulletins. MEDSTEP assets may only be utilized to provide serviceable temporary replacement for equipment being serviced at the MSD-Tracy. The USAMMA Maintenance Operations Division must approve exceptions. Exceptions may be requested telephonically by calling 301-619-4365 or DSN 343-4365. Once the owners' original equipment is received, the MEDSTEP item, to include all accessories, must be returned to the MMOD-CA. Reimbursable customers that use MEDSTEP must provide funds as necessary to restore the MEDSTEP item back to serviceable condition.

9. Cannibalization Point

The USAMMA MSD-Tracy maintains unserviceable assets of selected medical equipment for cannibalization. Authorized customers may request parts from Cannibalization for mission critical medical equipment when parts are not available from any other source.

Chief, Medical Maintenance Operations Division - California
USAMMA

APPENDIX D. SPECIAL PURPOSE TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE-SP) TABLES

The following tables may be used as a reference to determine the types and quantities of **medically unique** Special Purpose Test, Measurement, and Diagnostic Equipment (TMDE-SP) each type organization is authorized.

TABLE 1. COMBAT SUPPORT HOSPITAL, MEDICAL COMPANY

NSN	MATERIAL DESCRIPTION	LIN	UI	QUANTITY
6625012078270	TEST SET ELECTRICAL		EA	1
6685012927873	THERMOMETER SELF-INDI		EA	1
6515014792355	ANALYZER INTRAVENOUS		EA	1
6630014876987	ANALYZER GAS ANESTHET		EA	1
6525015020504	METER X-RAY CALIBRA		EA	1
6515015048537	PULSE OXIMETER,SIMU		EA	1
6515015352790	SIMULATOR SENSOR		EA	1
8145015357927	SHIPPING AND STORAG		EA	2
8145015358067	SHIPPING AND STORAG		EA	2
8145015358237	SHIPPING AND STORAG		EA	1
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	1
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	1
6695013030294	METER FOOT CANDLE	M38443	EA	1
6625015042654	ULTRASOUND WATTMTR	R95994	EA	1
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	1
6515014382409	TEST SET ELECTROSUR	T90883	SE	1
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	1
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	1
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	1
	COMPUTER		EA	1

TABLE 2. MEDICAL COMPANY W/68A AUTHORIZATION (FSB, MSB, BSB, ASMB)

NSN	Material description	LIN	UI	Quantity
6625012078270	TEST SET ELECTRICAL		EA	1
6685012927873	THERMOMETER SELF-INDI		EA	1
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	1
6515014382409	TEST SET ELECTROSUR	T90883	SE	1
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	1
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	1
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	1
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	1
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	1
6525015020504	METER X-RAY CALIBRA		EA	1

(Continued) TABLE 2. MEDICAL COMPANY W/68A AUTHORIZATION (FSB, MSB, BSB, ASMB)

NSN	Material description	LIN	UI	Quantity
6515015048537	PULSE OXIMETER,SIMU		EA	1
6515015352790	SIMULATOR SENSOR		EA	1
8145015357927	SHIPPING AND STORAG		EA	2
8145015358067	SHIPPING AND STORAG		EA	2
8145015358237	SHIPPING AND STORAG		EA	1
	COMPUTER		EA	1

TABLE 3. MEDLOG BN (FORWARD)

NSN	MATERIAL DESCRIPTION	LIN	UI	QUANTITY
6625012078270	TEST SET ELECTRICAL		EA	4
6685012927873	THERMOMETER SELF-INDI		EA	4
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	4
6695013030294	METER FOOT CANDLE	M38443	EA	4
6515014382409	TEST SET ELECTROSUR	T90883	SE	4
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	11
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	4
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	4
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	4
6515014792355	ANALYZER INTRAVENOUS		EA	2
6630014876987	ANALYZER GAS ANESTHET		EA	2
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	4
6525015020504	METER X-RAY CALIBRA		EA	4
6625015042654	ULTRASOUND WATTMTR	R95994	EA	2
6515015048537	PULSE OXIMETER,SIMU		EA	4
6515015352790	SIMULATOR SENSOR		EA	4
8145015357927	SHIPPING AND STORAG		EA	8
8145015358067	SHIPPING AND STORAG		EA	8
8145015358237	SHIPPING AND STORAG		EA	4
	COMPUTER		EA	4

TABLE 4. MEDLOG BN (REAR)

NSN	MATERIAL DESCRIPTION	LIN	UI	QUANTITY
6625012078270	TEST SET ELECTRICAL		EA	6
6685012927873	THERMOMETER SELF-INDI		EA	6
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	6
6695013030294	METER FOOT CANDLE	M38443	EA	6
6515014382409	TEST SET ELECTROSUR	T90883	SE	6
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	11
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	6
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	6
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	6
6515014792355	ANALYZER INTRAVENOUS		EA	4
6630014876987	ANALYZER GAS ANESTHET		EA	4
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	6
6525015020504	METER X-RAY CALIBRA		EA	6
6625015042654	ULTRASOUND WATTMTR	R95994	EA	4
6515015048537	PULSE OXIMETER,SIMU		EA	6
6515015352790	SIMULATOR SENSOR		EA	6
8145015357927	SHIPPING AND STORAG		EA	10
8145015358067	SHIPPING AND STORAG		EA	10
8145015358237	SHIPPING AND STORAG		EA	8
	COMPUTER		EA	6

TABLE 5. DENTAL COMPANY W/68A AUTHORIZATION

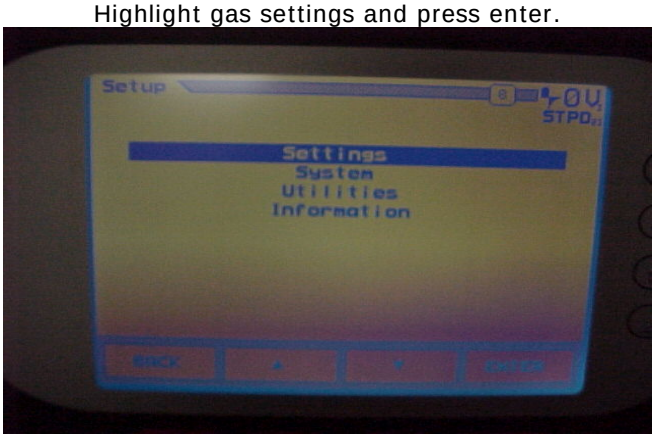
NSN	MATERIAL DESCRIPTION	LIN	UI	QUANTITY
6625012078270	TEST SET ELECTRICAL		EA	1
6685012927873	THERMOMETER SELF-INDI		EA	1
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	1
6525015020504	METER X-RAY CALIBRA		EA	1
8145015357927	SHIPPING AND STORAG		EA	2
	COMPUTER		EA	1

APPENDIX E. EXTERNAL O2 REGULATOR VERIFICATION

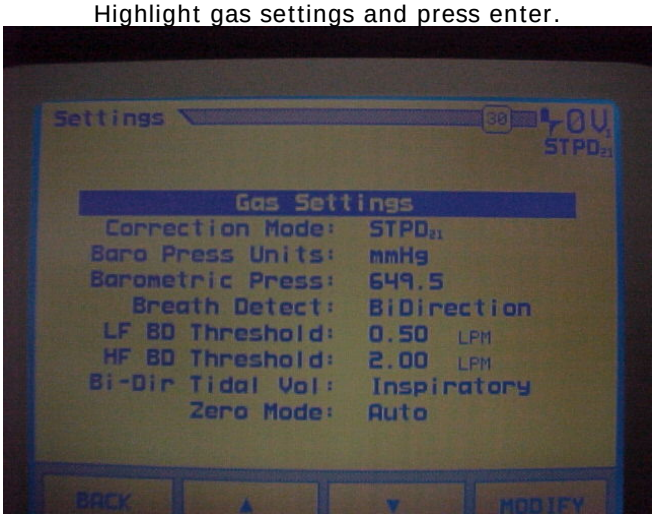
Install External O2 Regulator to H or K size Oxygen cylinder.
Make sure cylinder has 250 - 3000 psi.

Install one end of Oxygen hose to the O2 regulator output connector.
Setup VT Plus to read oxygen pressure.
Power up and let it zero after 5 minutes.
Press the pressure test mode button.
Press the setup button.
Highlight settings and press enter.

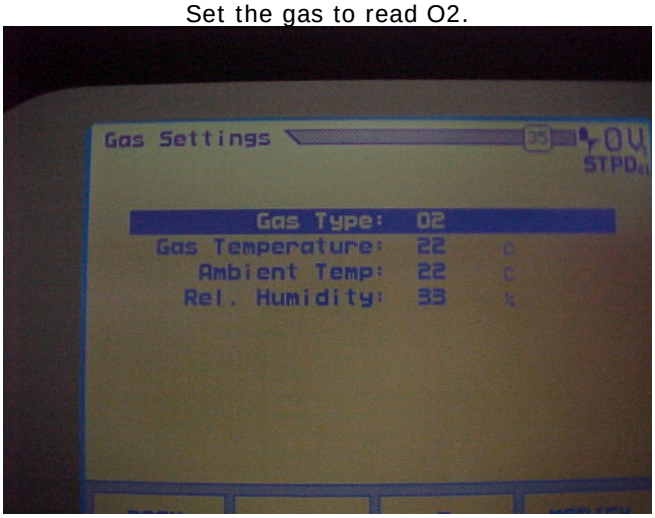
Highlight gas settings and press enter.



Highlight gas settings and press enter.



Set the gas to read O2.

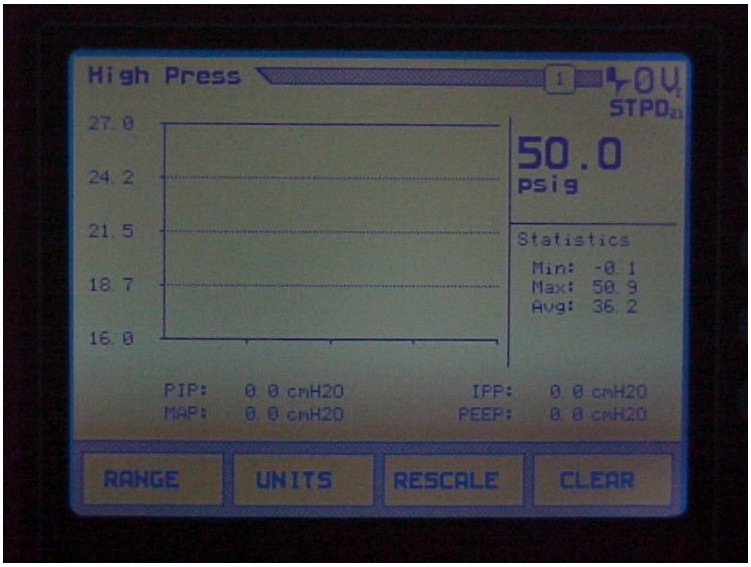


Press back until in the pressure test mode again.

Install the other end of the oxygen hose to the positive pressure connection of the VT Plus.

Open the oxygen (H or K) cylinder.

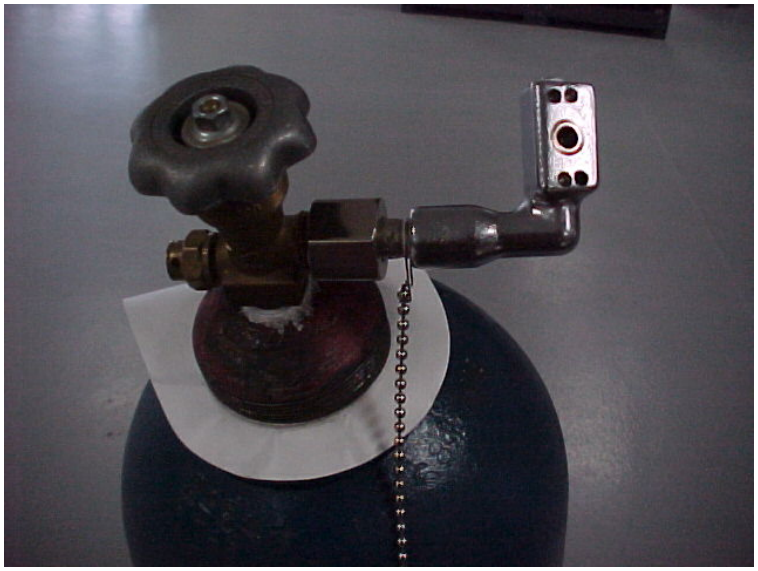
Verify that the pressure of the regulator is between 49 - 54 psi.



Disconnect the oxygen hose from the O2 regulator.
Disconnect the O2 regulator from the oxygen cylinder.

APPENDIX F. EXTERNAL NO2 REGULATOR VERIFICATION

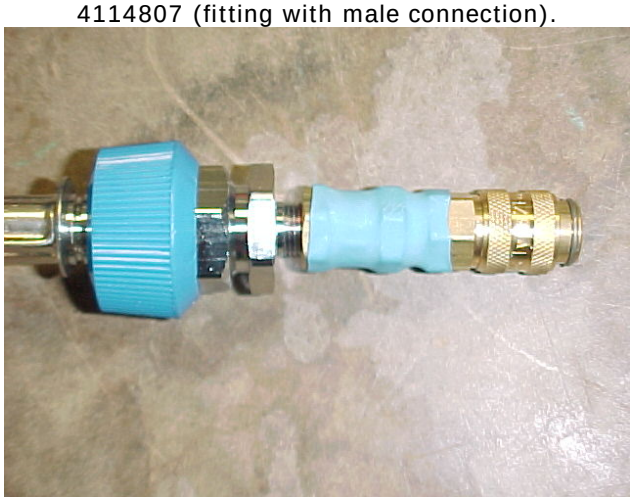
Connect N2O cylinder adapter to H or K size cylinder of nitrous oxide.



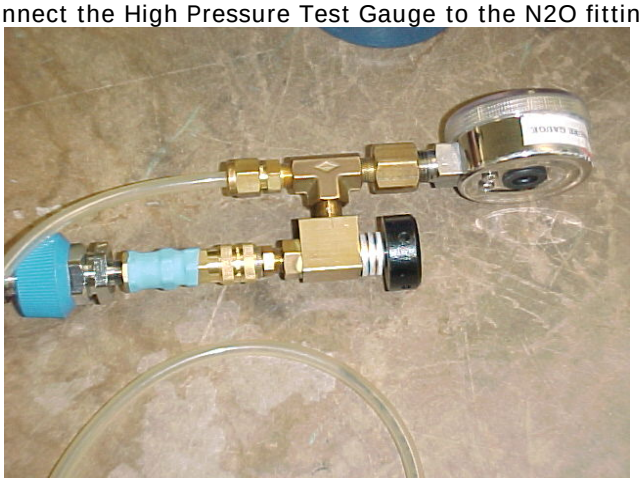
Connect external N2O regulator to N2O cylinder adapter.

Connect one end of a blue N2O hose to the regulator output connector.

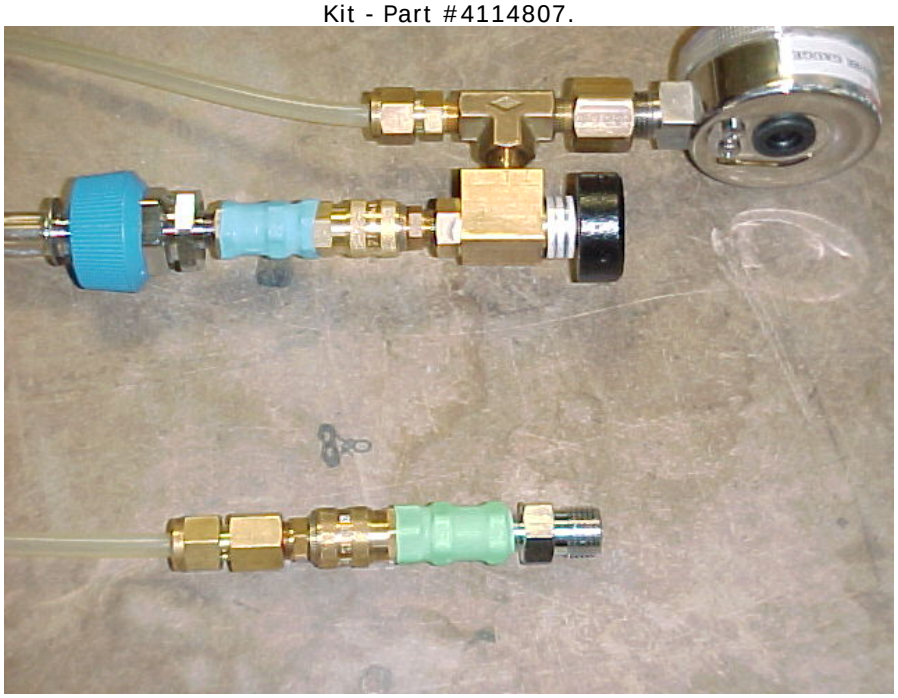
Connect the other end of the blue N2O hose to the N2O fitting from the Narkomed Kit Part # 4114807 (fitting with male connection).



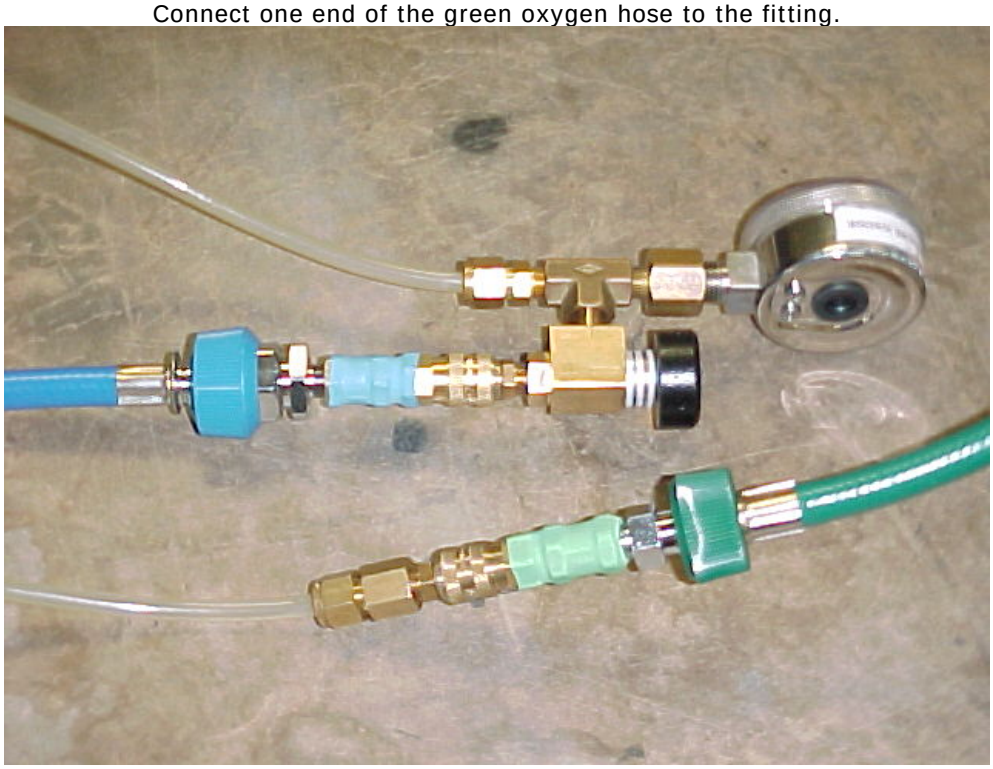
Connect the High Pressure Test Gauge to the N2O fitting.



Connect the hose of the High Pressure Test Gauge to male oxygen fitting from the Narkomed Kit - Part #4114807.

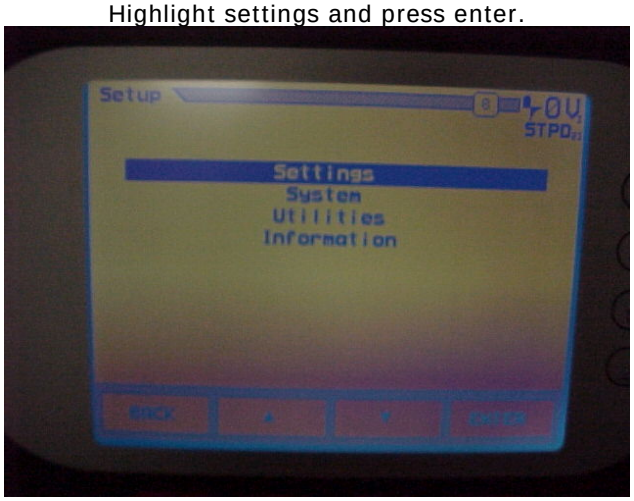


Connect one end of the green oxygen hose to the fitting.

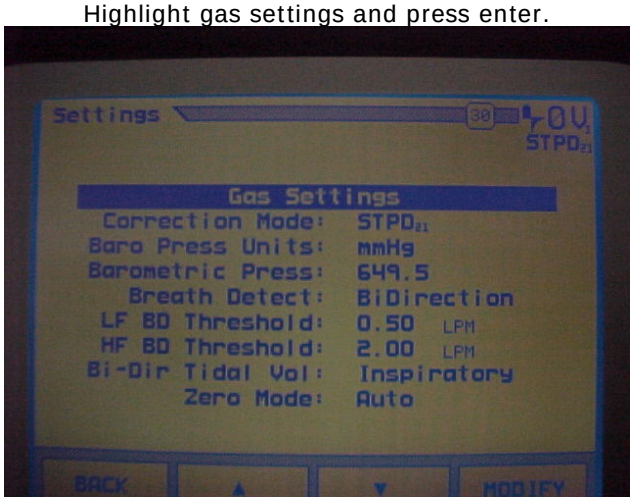


Setup the VT Plus to read N2O.
Power up and let it zero after 5 minutes.
Press the pressure test mode button.

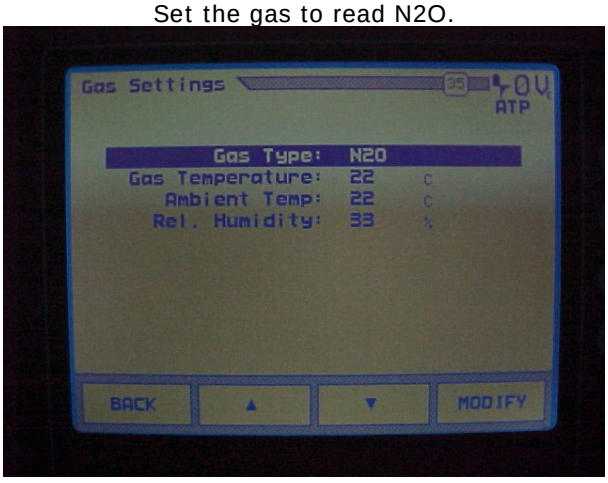
Press the setup button.
Highlight settings and press enter.



Highlight gas settings and press enter.



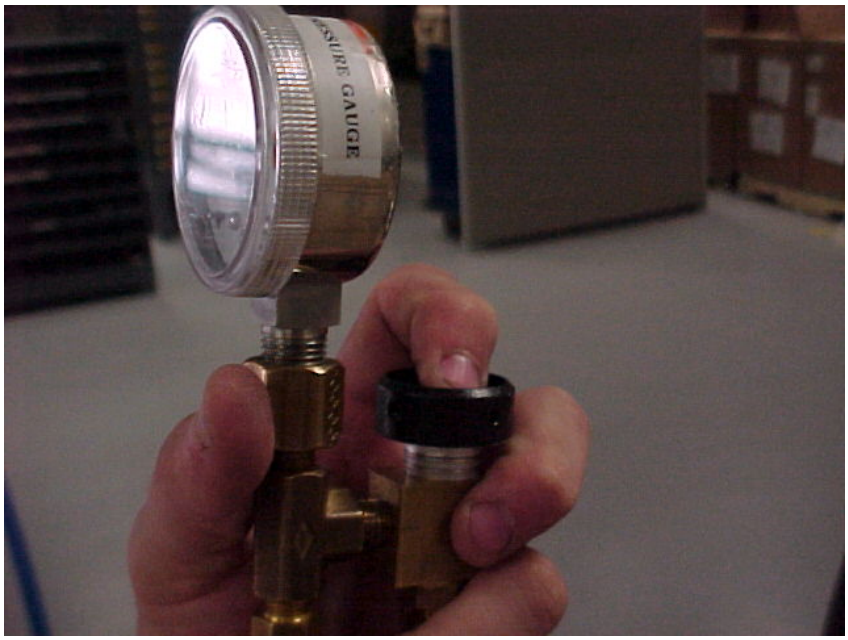
Set the gas to read N2O.



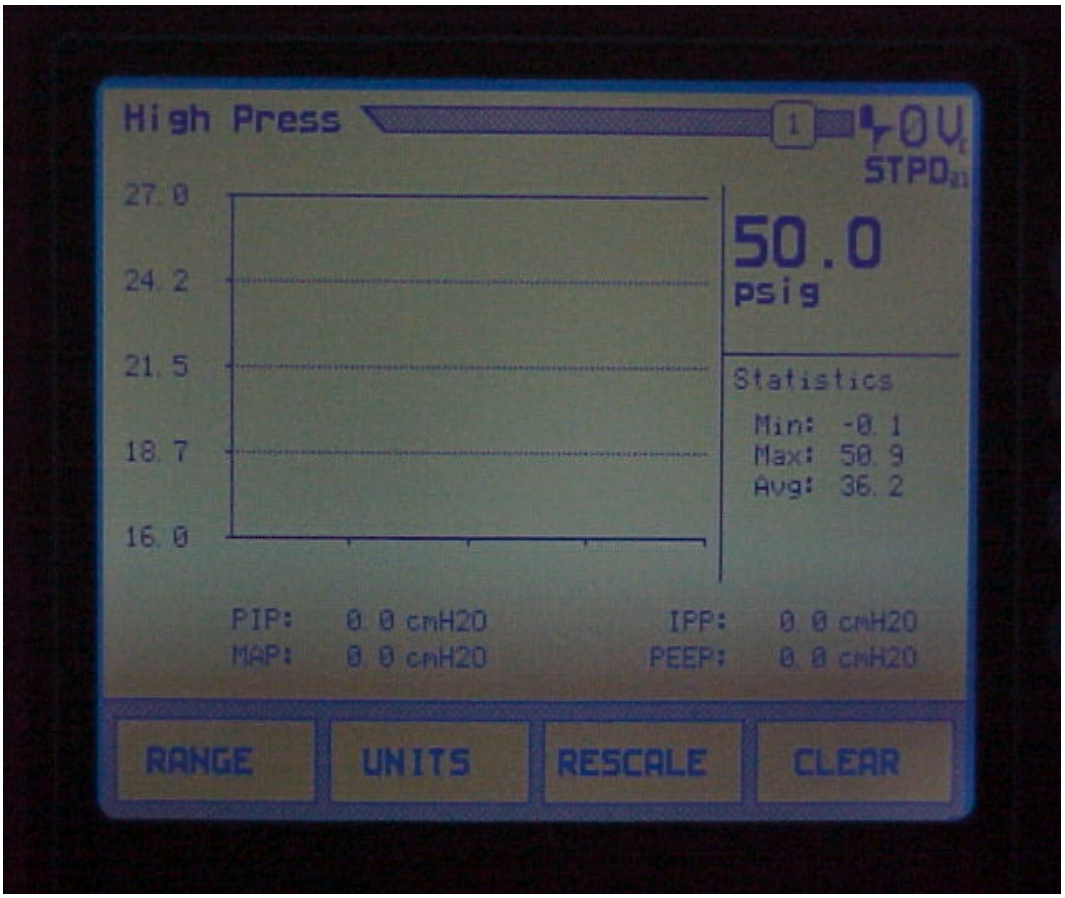
Press back until in the pressure test mode again.

Connect the other end of the oxygen hose to the positive pressure connection of the VT Plus.

Open the N2O (H or K) cylinder.
Press and hold the push button on the High Pressure Test Gauge.



Verify that the pressure read on the VT Plus from the regulator is between 49 - 54 psi.



Disconnect all fittings, hoses, and components of this test and return to proper location.

APPENDIX G. PUMP, INFUSION, 6515-01-486-4310, DISPLAY PROBLEMS

1. There have been some noted problems with some of the newer Alaris Infusion Pump Displays. These display problems include discoloration of the pixels, inconsistent dark and light color and uneven (blotchy) polarization, and shadows of the previous screen affecting the performance and bringing into question the reliability of the LCD. It has been concluded that the problems are common to the newer Solomon LCD.

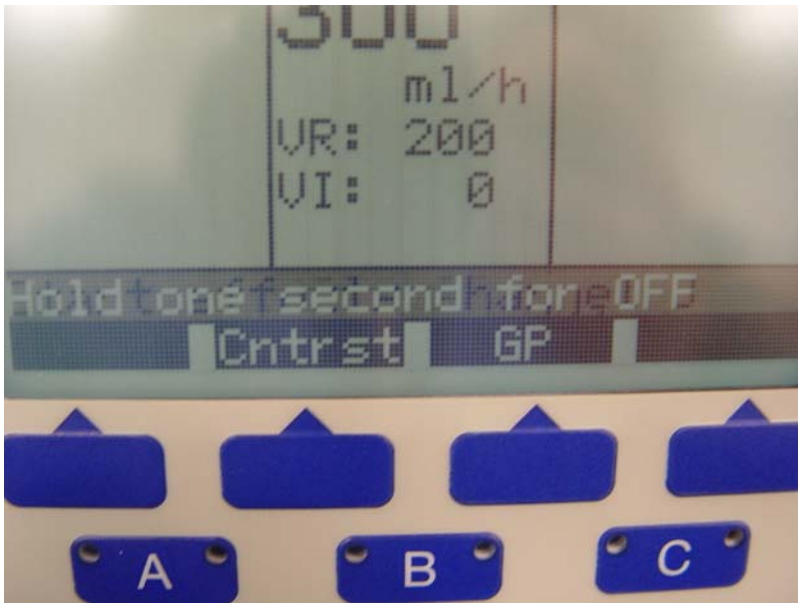
2. Cardinal Health Alaris recognizes this problem and has agreed to perform the necessary circuit repair for any units demonstrating this problem. The following procedure should be considered by medical equipment repairers to test Alaris Infusion Pumps. This guideline **does not** replace the manufacturer's procedures for testing or servicing their product.

a. **Turn on the unit** and wait 20 minutes for the display to warm up.

b. Press **ON/OFF** button briefly to see the text "**HOLD ONE SECOND FOR OFF"** displayed in clear letters highlighted by a black background of solid dark pixels. Examine the dark background of the display for any pixels discoloration to include any inconsistent dark and/or light color as well as dark and/or light blocks of pixels throughout the highlighted section. Also look for a shadow of the previous screen behind the **HOLD ONE SECOND FOR OFF** which reads **START AFFECTS CHANNEL C.** The color uniformity of the pixels in question will blend on the screen within approximately 30 seconds and will start to appear dark and inconsistent in color throughout the display (each unit may be different).

c. Figure G-1 demonstrates multiple text "messages" display simultaneously.

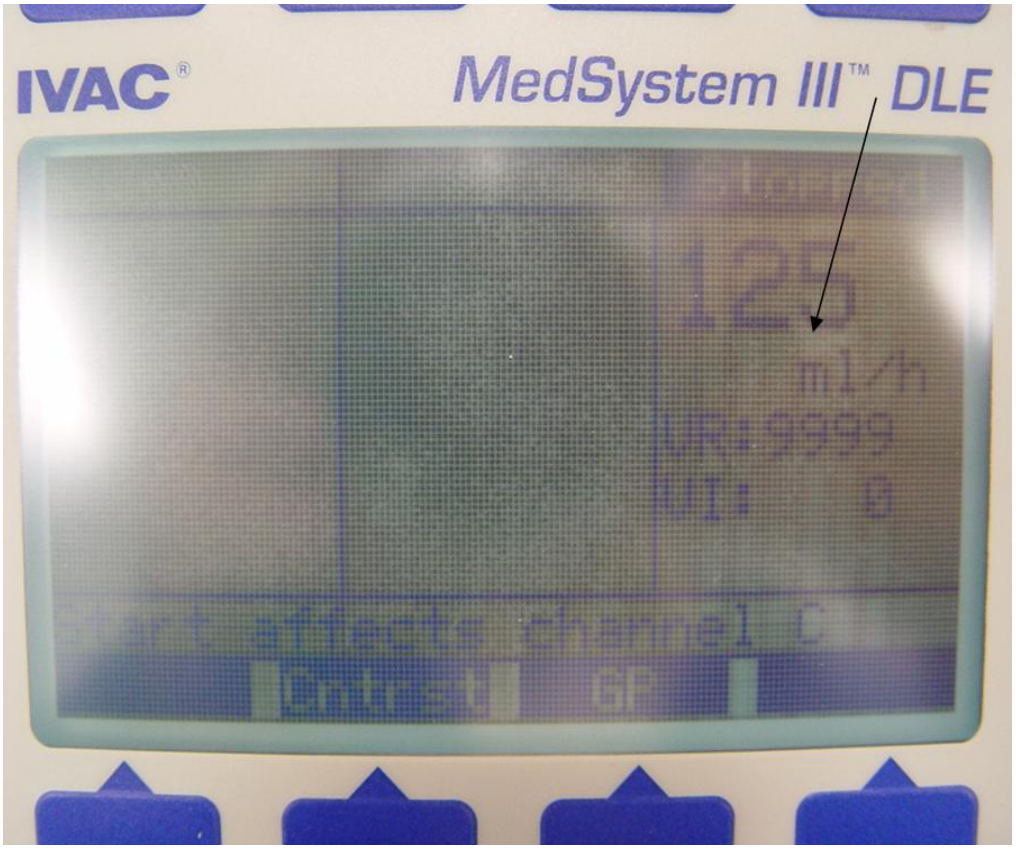
Figure E-1. SIMULTANEOUS MESSAGE DISPLAY



d. With the LCD set to lowest contrast setting, when turning unit off, the text string "Start effects channel C" is still visible beneath new text string "Hold one second for OFF". This effect does not occur if unit is powered on and off within approximately 10 seconds. However when allowed to sit for some time (sometimes as short as 20 seconds) and then turned off, residual pixilated data from previous text string is visible during power down.

e. Figure G-2 demonstrates the uneven (blotchy) polarization. This dark contrast effect appears to be common on all units tested using a Solomon LCD, but is not found when LCD is replaced with the older Optrex LCD.

FIGURE G-2. INCONSISTENT AND BLOTCHY DISPLAY



APPENDIX H. REFRIGERATOR, BLOOD, 4110-01-506-0895 - PMCS PROCEDURES

1. The following is a list of TMDE required for the complete PMCS of the ACUTEMP model: HMC-MIL-1 Blood Refrigerator unit.

TMDE ITEM REQUIRED	TMDE ITEM USED
Digital Thermometer	
Safety Analyzer	
Computer (for data log downloads)	

2. This item requires a DA Label 2163 (CVC) with a Frequency of "A" and code of "I".

Note: When unit is in storage, every attempt should be made to ensure the batteries are charged IAW the manufacturer's recommendations.

3. PMCS Checklist

a. Visual checks

(1) Check for NSN label. The item may or may not have a label on the side.

(2) Check for external/internal damage

(3) Verify that all accessories are available.
(a) Stainless Steel blood bag baskets: one set of 10 each. (check for sharp burs on the basket and shave as necessary)
(b) 40 amp hour battery set, two 20 amp hour batteries: set of 2 each
(c) AC power cord
(d) DC power cord
(e) Operation and Maintenance manuals (hard copy 1 each)
(f) Service and Repair manual (hard copy 1 each)
(g) Operation and Service Manual on CD (1 each)
(h) Service and Repair manual on CD (1 each)
(i) Hemalog software CD (1 each)
(j) Sponge (1 each)
(k) Screwdriver (1 each)
(l) Replacement filters (10 each)

(4) Inspect unit's LCD display which should be centered in the window.

(5) Inspect unit's LED display, it should be clearly visible without any obstructions. The manufacturer and USAMMA have determined that visibility of ¾ of the circle on the LED is the minimum acceptable. It was agreed that the items will be no less than ¾ of the LED circular area.

(6) Inspect unit for missing internal blood baskets.

(7) Inspect unit's exterior for missing hardware such as missing vents or filters.

(8) Inspect unit's latches and verify they are able to close. **CAUTION: Some are too far away from each other which will cause excessive strain on the plastic components of the refrigerator.**

(9) Inspect Lithium battery cover holder for broken clips. **CAUTION: These clips enable the cover to latch to the holder itself and are susceptible to breaking.**

(10) Inspect unit's serial number at power up on the displayed LCD screen.

(11) Inspect the cooling fan is blowing on the side of the unit.

(12) Inspect inner tub/payload of unit for any irregular appearance of the plastic liner.

(13) Inspect the battery percentage is 100% after 24 hours of continuous charge.

(14) Inspect the LCD display for any error coded on the screen relating to the battery. (NOTE: A zero value listed on the data log in the battery charge section along with an error code on the LCD means the control board needs replacement.)

(15) Check Service Mode: Press and hold **"MODE"** for 3 to 5 sec. Then press **"DISPLAY"** once, verify that the top right of the screen displays a **"K:_____I"** (when the lid is closed; and that it displays an **"L"** when opened, L will not be present K:_____. This verifies that the magnets on the lid are getting read by the unit.

b. Verify firmware version procedure

(1) Operational enhancements to the HemaCool 5 firmware were last made on 19 May 2005. There were adjustments made to the control algorithms which allow the units to maintain COOL and FREEZE set point temperatures under more extreme conditions. Units with firmware dates prior to 19 May 2005, although not necessary for proper operation, should be considered for firmware upgrades that may potentially improve their already noteworthy performance.

(2) An additional change that was implemented in the 19 May 2005 firmware is the elimination of the annoying audible alarm that is emitted when the HemaCool is first conditioned. This means that when the HemaCool is first changed from IDLE to either COOL or FREEZE, the alarm will not sound until after the unit has achieved the set point.

(3) Not all HemaCool 5's are capable of running the updated firmware. To verify your unit has the latest firmware revision or is able to be upgraded, do the following:
(a) Verify your unit has a serial number 5000 or greater. The firmware upgrade is only applicable to serial numbers 5000 and greater.
(b) Plug the unit into an AC outlet and leave in IDLE mode.
(c) Depress and hold MODE key for 3-4 seconds until the display page changes to a diagnostic screen, then release.
(d) Depress and release center DISPLAY button to page to the next screen.
(e) The date at the top left hand of the screen is your firmware release date. If it displays a date prior to 19 May 05, one should consider having the unit's firmware upgraded.

(4) With the latest version (19 May 05) of the HemaLog software loaded on PC and connected to the unit with a standard serial cable, upgrading the firmware of the HemaCool is a simple 2 click process. Follow the instructions described on page 1-32 of the HemaCool Operating Instruction Manual. Contact AcuTemp Technical Support if you need the latest version of the firmware or need any assistance.

c. Performance checks.

Follow Manufacturer's Recommended Checkout Procedures

d. Cleaning.

(1) **CABINET.** Clean the exterior with mild soap and water. Never use abrasive scouring powders.

(2) **INTERIOR AND DOOR.** Wash interior compartment and door gasket with soap and water. Mix 2 tablespoons of baking soda (if available) with one quart of warm water. Do not use an abrasive powder, solvent, polish cleaner or undiluted detergent.

(3) **STAINLESS STEEL TOP.** Clean all stainless steel components of the sink using a stainless steel cleaner.

e. Packaging

(1) Pour about a pint or so of antifreeze into the pump housing and ensure there are no leaks from the sink.

(2) Pack the accessories.

(3) Wrap the sink with bubble wrap or

(4) Band the top and bottom horizontally along the folding lips of the box.

f. Tips for the Medical Equipment Repairer;

(1) Perform visual inspection on unit to be tested for discrepancies related to assembly.

(2) Read the log on the unit to determine the cycle intervals to be within the specified 4 hours tolerance at normal ambient temperatures. Battery voltages should never fall below 12.0 VDC, if it does, replace immediately. Important to input the proper date and serial number as well as time on the initial power up of the unit because this will be useful on the units data log.

(3) Thermistor of the units payload, responsible for the displayed temperature reading, is located inside the payload chamber bottom center, secured by a zip tie. Give the test equipment ample time to stabilize.

(4) If unit does not power up with ac power verified by a non working power supply led, replace board.

(5) If unit is not within tolerance, board replacement is required or the unit needs to be sent to the OEM as of this time for insulation replacement repair is required and is only performed at the manufacturer's level at this time.

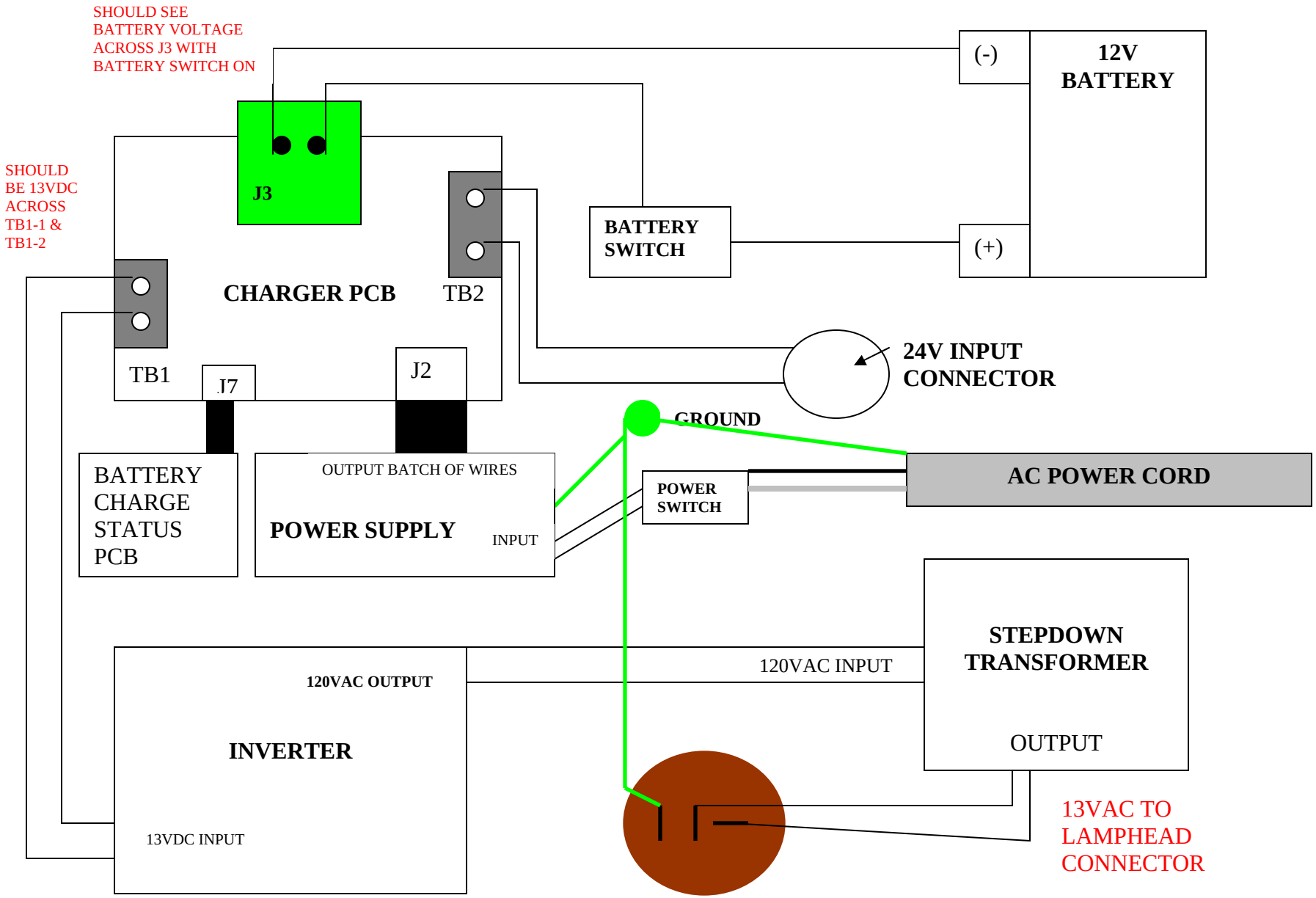
(6) Upon review of the units data log, if there are missing information anomalies in the processors communication between the compressor and the CPU, separate the unit in question and tag with the appropriate tag to prevent unintended use. Example: missing codes stated on number 7 of this write up.

(7) Status codes on equipment data log:

Y/N	On/Off
L/F	Cool/Freeze
C	Compressor On
H	Heater On (Unit Goes On Cool Mode From Freeze By Activating Heater)
O	Lid Open

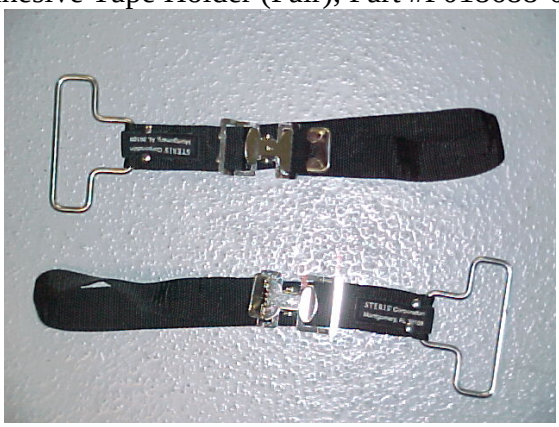
For additional information, contact ACUTEMP, 7610 McEwen Road, Dayton, OH 45459, U.S.A.; phone: 937-312-0114, FAX: x-1277, www.acutemp.com, www.support@acutmep.com

APPENDIX I. SURGICAL LIGHT BASE, 6530-01-518-9854 WIRING DIAGRAM



APPENDIX J. OPERATING TABLE COMPONENTS

Adhesive Tape Holder (Pair), Part #P018688-091



Winged Ether Screen Assy, Part #P077033-091

Lateral Braces (Pair), (AKA Kidney Bridge Post)
Large: Part #P626397-001, Small: Part #P626397-002

Wrist Holder Assy. (Pair), Part #P077036-091
(No longer available from Steris Corp.)

Knee and Footrest Assy. (Pair), Part #P077040-091

Pads, (Complete packaging of 3), Part #P150830177

Pad, Foot Section, Part # P093074-001

Pad, Back Section, Part # P093075-001

Pad, Head Section, Part # P093076-001

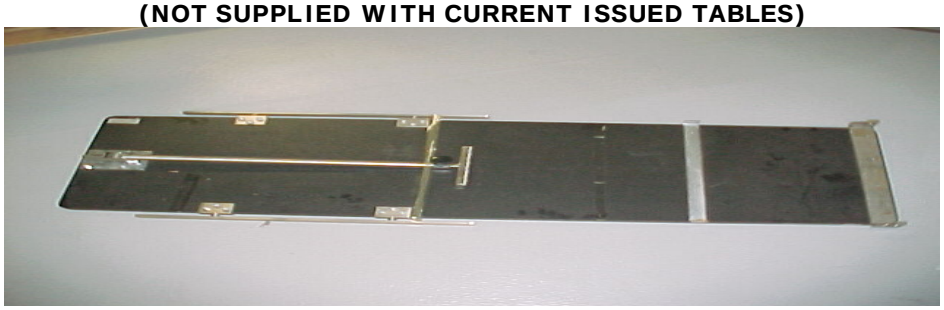
X-ray Top Sections (Head, Back, Seat, Leg), Part 129357-096

3” Arm Board Pad, Part #P150830-168

Arm Board w/o Pad, Part #P056130-001

Clark Sockets (4 ea), Part #77038-091
Sold in Pairs $255
(No longer available from Steris Corp.)

62” Image Intensifier Board, Part # BF16-400
(NOT SUPPLIED WITH CURRENT ISSUED TABLES)



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By Order of the Secretary of the Army:

SB 8-75-S6

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army

Distribution:

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